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SERVICE MANUAL

Canon

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Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

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Caution

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
⚠	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
⚡	Indicates an item requiring care to avoid electric shocks.
🚫	Indicates an item requiring care to avoid combustion (fire).
🚫	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
🔌	Indicates an item requiring disconnection of the power plug from the electric outlet.
Memo	Indicates an item intended to provide notes assisting the understanding of the topic in question.
REF.	Indicates an item of reference assisting the understanding of the topic in question.
☝	Provides a description of a service mode.
Error	Provides a description of the nature of an error indication.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.

   In the diagrams, ■■■ represents the path of mechanical drive; where a signal name accompanies the symbol, the arrow → indicates the direction of the electric signal.

   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.

2. In the digital circuits, '1'is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low".(The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.

   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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Chapter 1

Introduction

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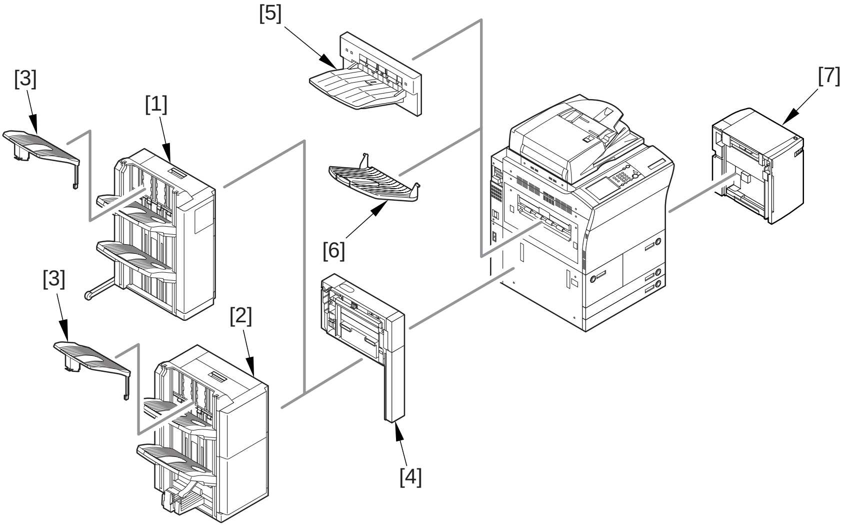
1.1 System Construction

1.1.1 System Configuration with Pickup/Delivery Accessories

The machine may be configured as follows with pickup/delivery accessories



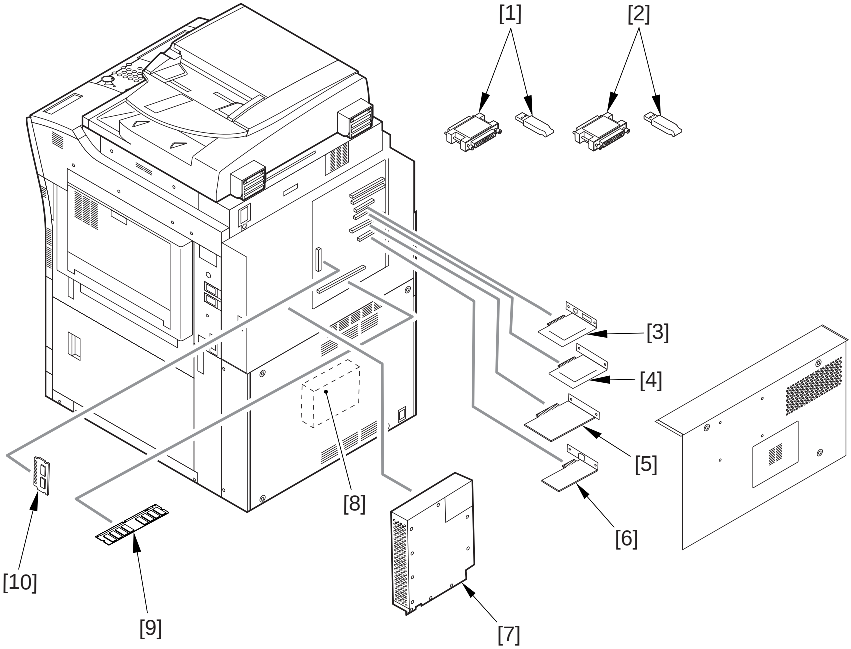
F-1-1

[1] Finisher-R1
[2] Saddle Finisher-R2
[3] Additionary Finisher Tray-A1
[4] Puncher Unit-L1
[5] Shift Tray-C1
[6] Delivery Tray-K1
[7] Side Paper Deck-U1

* If any of the accessories [1] through [3] is used, the accessories [5] and [6] cannot be used as part of the system.

1.1.2 System Configuration with Printing/Transmission Accessories

System Configuration with Printing/Transmission Accessories:



F-1-2

[1] iR Security Kit

[2] SEND Expansion Kit D1P/D1U (dongle for extended functions)

[3] Image Conversion Board-A2

[4] USB Interface Board-A3, or TokenRing Board (optional for 120V model)

[5] UFR Board (standard for N model)

[6] Ethernet Board (standard)

[7] Super G3 Fax Board-P1 (optional for 100V model)

[8] PS Print Sever Unit-D1

[9] Color iR 256 MB Expansion RAM (optional for 100V)

[10] PDL Expansion Kit (LIPS) C1 (for 100V model, LIPS model boot ROM)

1.1.3 Functions of Printing/Transmitting Accessories

The following is a table of functions expected of printing/transmitting accessories:

T-1-1

	UFR Printer/ Scanner Kit-C1	**SEND Expansion Kit-DIP/DIU**	**Image Conversion Board-A2**	**USB Interface Board-A3**	**Super G3 Fax Board-P1**
GDI-UFR printing	yes*	-	-	-	-
SEND function	-	yes	yes	-	-
Faxing	-	-	yes	-	yes
Local printing	yes*	-	-	yes	-

The following is a brief explanation of the functions expected of the accessories; for details, see the chapters that follow:

- UFR Printer/Scanner-C1

adds the GDI-UFR printing function and a scanning function in combination with ScanGear.

- SEND Function Expansion DIU-DIP/DIU

adds a transmission function; the setup work calls for a PC, requiring the selection of DIP (parallel port) or DIU (USB port) depending on the type of connection offered by the PC.

- Image Conversion Board-A2

needed when a transmission/fax function is added.

- USB Interface Board-A3

adds a printing function by connection to a PC in a local configuration (USB); requires a UFR board.

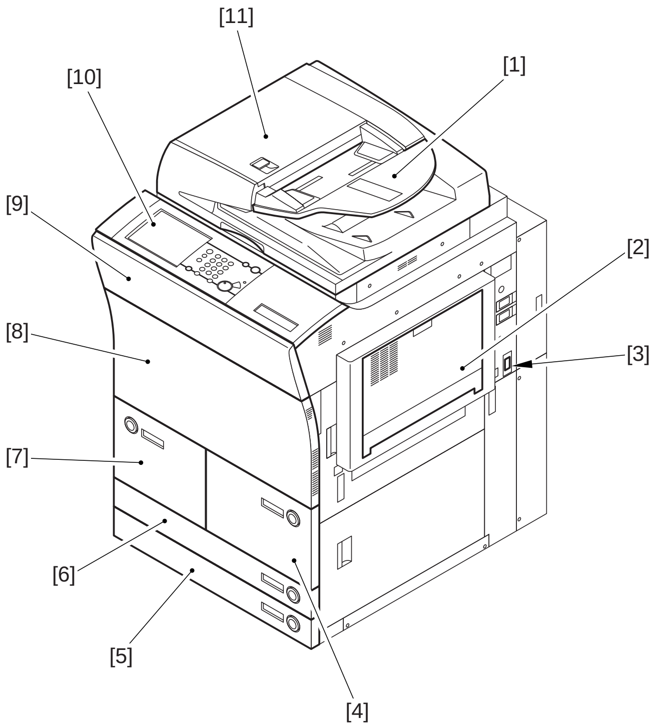
- Super G3 Fax Board-P1

adds the G3 fax function.

1.2 Product Specifications

1.2.1 Names of Parts

1.2.1.1 External View



F-1-3

[1] Original pickup tray

[2] Manual feed tray

[3] Main power switch

[4] Right front paper deck

[5] Cassette 4

[6] Cassette 3

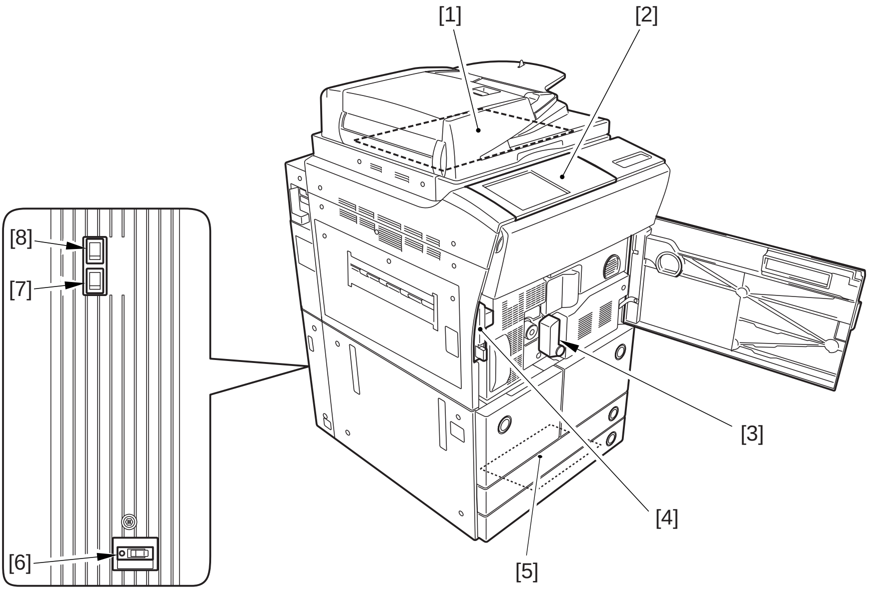
[7] Left front paper deck

[8] Front cover

[9] Black toner supply cover

[10] Control panel LCD (touch panel)

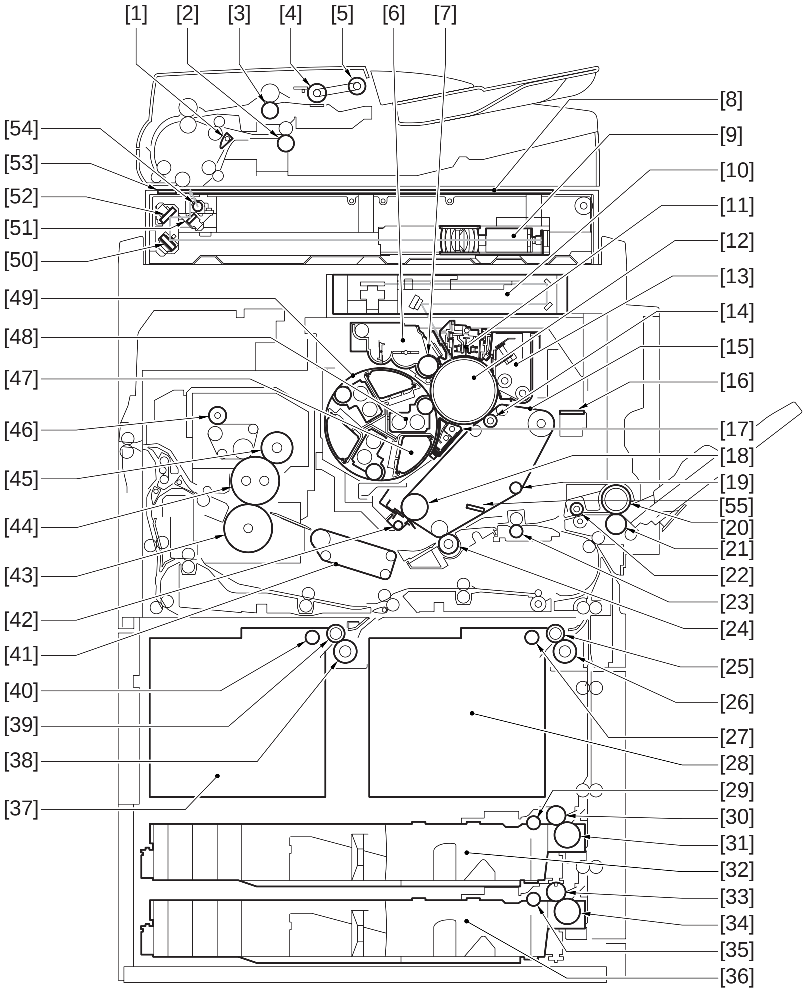
[11] ADF



F-1-4

[1]	Copyboard glass
[2]	Control panel
[3]	Feeding assembly release lever
[4]	Door switch assembly
[5]	Service book case
[6]	Leakage breaker
[7]	Cassette heater switch
[8]	Environment switch

1.2.1.2 Cross Section


[1]
[2]
[3]
[4]
[5]
[6]
[7]
[8]
[9]
[10]
[11]
[12]
[13]
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[44]
[43]
[42]
[41]
[40]
[39]
[38]
[37]

F-1-5

[1] Delivery reversing flapper

[2] Delivery reversing lower roller

[3] No. 1 registration lower roller

[4] Separation roller

[5] Pickup roller
[6] Black toner developing assembly
[7] Black developing cylinder
[8] Copyboard glass
[9] CCD unit
[10] Laser/scanner assembly
[11] Primary charging assembly
[12] Photosensitive drum
[13] Drum cleaner assembly
[14] Primary transfer roller
[15] ITB (intermediate transfer belt)
[16] Patch image read sensor
[17] Pre-transfer charging assembly
[18] ITB drive roller
[19] Tension roller
[20] Manual feed roller
[21] Manual feed separation roller
[22] Manual feed pull-off roller
[23] Registration roller
[24] Secondary transfer outside roller
[25] Right deck feed roller
[26] Right deck separation roller
[27] Right deck pickup roller
[28] Right deck
[29] Cassette 3 pickup roller
[30] Cassette 3 feed roller
[31] Cassette 3 separation roller
[32] Cassette 3
[33] Cassette 4 feed roller
[34] Cassette 4 separation roller
[35] Cassette pickup roller
[36] Cassette 4
[37] Left deck
[38] Left deck separation roller
[39] Left deck feed roller
[40] Left deck pickup roller

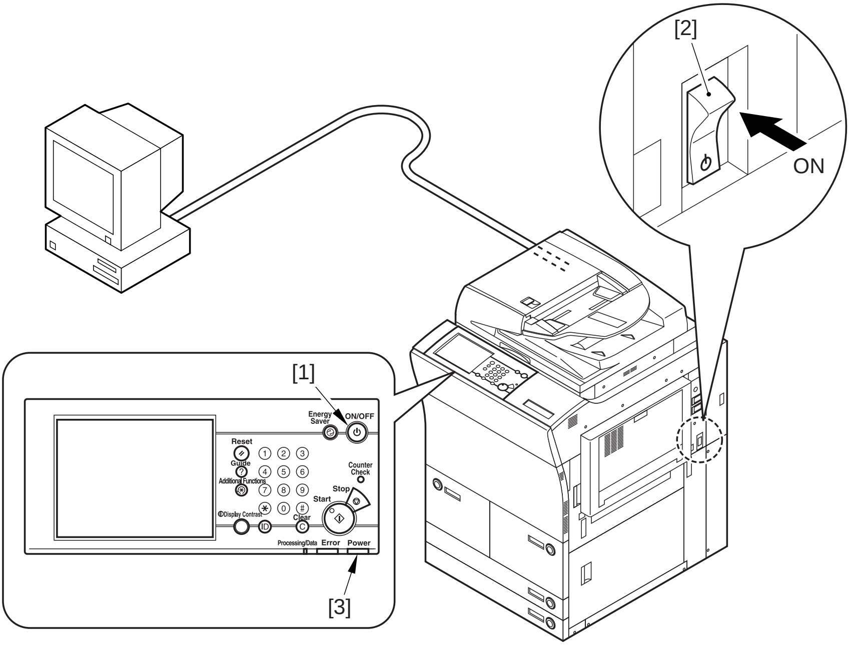
[41] Feeding assembly
[42] ITB cleaner assembly
[43] Pressure roller
[44] Fixing roller
[45] External heating roller
[46] Fixing web
[47] Color toner cartridge
[48] Color developing assembly
[49] Developing rotary assembly
[50] No. 3 mirror
[51] No. 1 mirror
[52] No. 2 mirror
[53] ADF reading glass
[54] Scanning lamp
[55] ITB inside cleaner end scraper

1.2.2 Using the Machine

1.2.2.1 Turning On the Power Switch

The machine is equipped with 2 power switches: main power switch and control panel power switch.

Normally, the machine goes on when the main power switch is turned on (i.e., other than in power save mode, low power mode, sleep mode).


[2]
ON
[1]
Energy Saver
ON/OFF
Reset
Guide
Additional Functions
Counter Check
Stop
Start
Clear
Display Contrast
Processing/Data
Error
Power
[3]

F-1-6

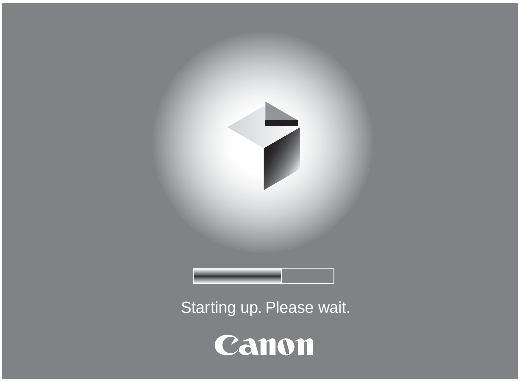
[1] Control panel power switch

[2] Main power switch

[3] Main power indicator lamp

⚠

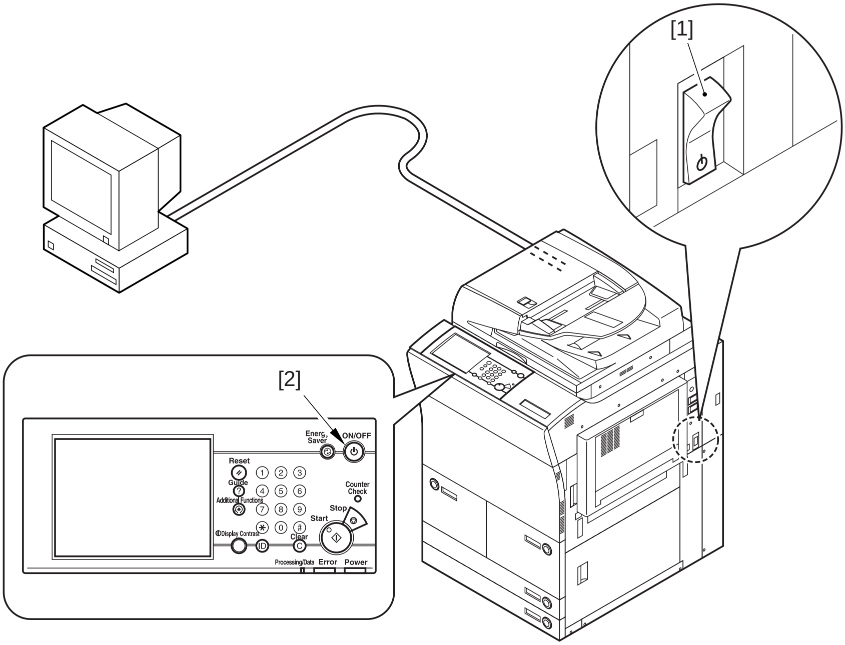
Do not turn off the main power while the progress bar is indicated, during which access is made to the HDD. If deprived of power, the HDD can suffer a fault (E602).


Starting up. Please wait.
Canon

F-1-7

1.2.2.2 Points to Note About Turing Off the Main Power Switch

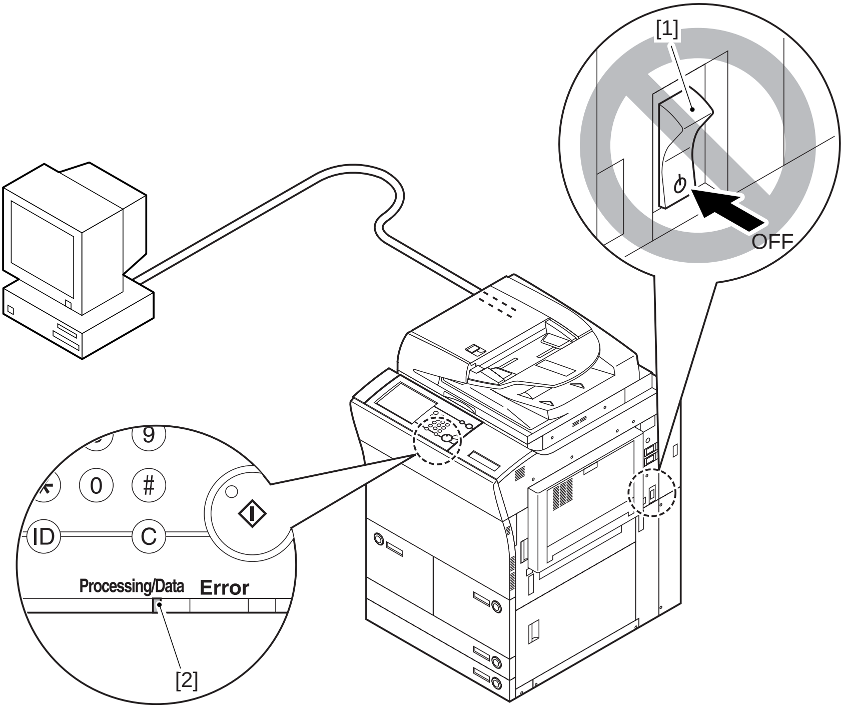
Be sure to turn off the control panel power switch [2] before turning off the main power switch [1].


[1]
[2]
Energy Saver
ON/OFF
Reset
Guide
Additional Functions
Counter Check
Stop
Start
Display Contrast
Clear
Processing/Data
Error
Power

F-1-8

When Sending Data to the Printer or Using the Fax Unit

Be sure that the Execution/Memory lamp [2] on the control panel is off before operating the main power switch. (Turning off the main power while a job is under way can cause loss of the data being processed.)

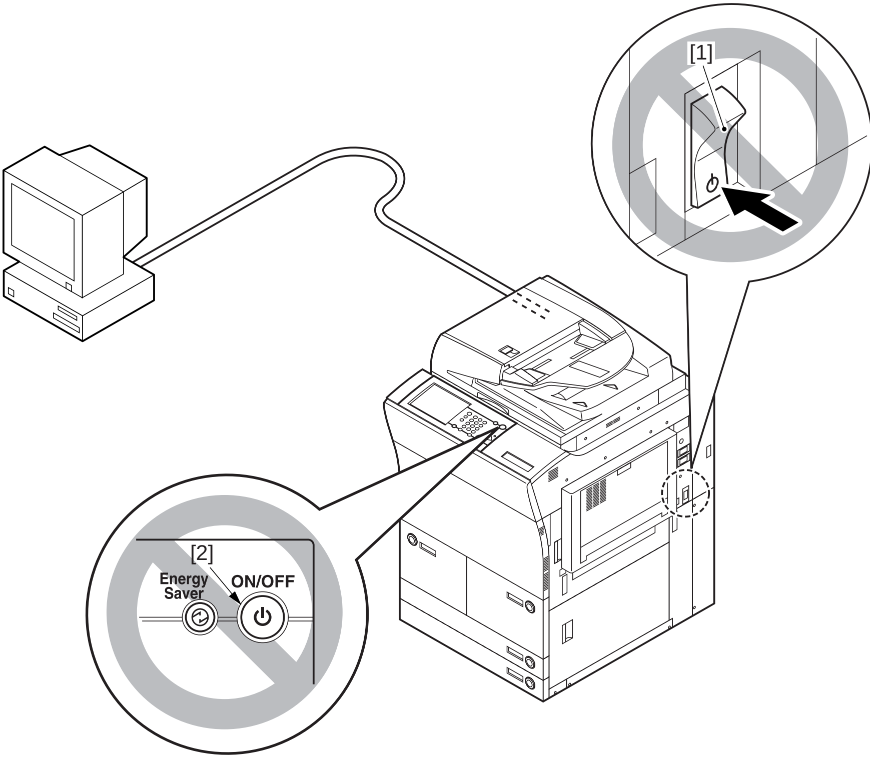

[1]
OFF
9
0
#
ID
C
Processing/Data
Error
[2]

F-1-9

⚠

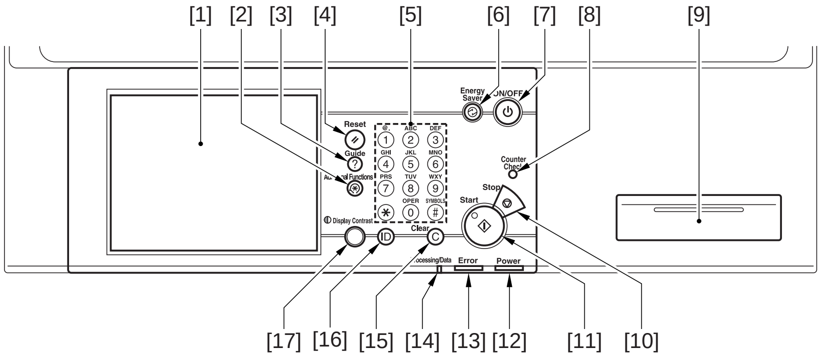
When Downloading Is Under Way

Do not turn off the control panel switch [2] or the main power switch [1]. (Turning off the main power switch while downloading is under way can disable the machine.)


[1]
[2]
Energy Saver
ON/OFF

F-1-10

1.2.2.3 Control Panel


[1]
[2]
[3]
[4]
[5]
[6]
[7]
[8]
[9]
Energy Saver
ON/OFF
Reset
Guide
Additional Functions
@.
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
OPER
SYMBOLS
*
0
#
Counter Check
Stop
Start
Display Contrast
ID
Clear
C
Processing/Data
Error
Power
[17]
[16]
[15]
[14]
[13]
[12]
[11]
[10]

F-1-11

[1] Control panel LCD (touch panel)

[2] User mode key

[3] Guide key

[4] Reset key

[5] Keypad

[6] Power Save key

[7] Control panel power switch

[8] Counter key

[9] Clip recess

[10] Stop key

[11] Start key

[12] Main power indicator lamp

[13] Error indicator lamp

[14] Execute/Memory indicator lamp

[15] Clear key

[16] ID key

[17] Screen contrast dial

1.2.3 User Mode Items

1.2.3.1 Common Settings

* Factory setting.

T-1-2

Item	Description
initial function	initial function: *copy, transmit/fax, box system initial screen: ON/*OFF priority on system device: *ON/OFF
function after auto-clear	*return, do not return
buzzer ON/OFF	input sound: *ON/OFF input invalid sound: ON/*OFF supply alert sound: ON/*OFF warning sound: *ON/OFF job end sound: *ON/OFF
paper level message	*ON/OFF
auto color (w/ BW selected)	priority on text/*on photo
inch input	inch input (on/*off; on if 230-V model)
cassette auto select ON/OFF	copier: *manual off, other on printer: *all on box: *manual off, other on reception/fax: *manual off, other on other: *manual off, other on
paper type registration	yes
change power save mode	*-10%, -25%, -50%, no return time
power consumption in sleep	*low, high

Item	Description
LTRR/STMT original distinction	manual, *on at LTRR, on at STMT
special tray setup (indicated only if w/ finisher)	yes
priority on output	copier: *1/2/3 printer: 1/*2/3 box: 1/2/*3 reception/fax: 1/2/*3 other: 1/2/*3
manual feed paper standard mode registration	on (paper size select, paper type select), *off
local print standard mode	paper select: *auto, cassette 1 thorough 5 print quantity: *1 to 2000 sorter (if w/ finisher): non-sort, *sort, rotation sort, group, rotation group sorter (w/ finisher): non-sort, sort, *shift sort, group, shift group, rotation group, staple double-sided print: on (left/right spread, top/bottom spread), *off file delete after printing: ON/*OFF file merge: ON/*OFF
display language	ON/*OFF
screen color reversal	ON/*OFF
between-job shift (indicated if w/ finisher)	*ON/OFF
read area cleaning message	*ON/OFF
gamma level during remote scan (indicated if w/ UFR Printer & Scanner Kit-B1)	gamma1.0/gamma1.4/*gamma1.8/gamma2.2
function limit mode (indicated if w/ finisher)	ON/*OFF

Item	Description
common settings initialize	ON/*OFF

1.2.3.2 Setting the Timers

* Factory setting.

T-1-3

Mode	Description
date/time	enable time zone, *daylight saving
auto sleep time	10, 15, 20, 30, 40, 50, 1 hr, 90 min, 2, 3, 4 hr
auto clear time	0=no; 1... *2... 9 min (in 1-min increment)
weekly timer	00:00 to 23:59 (1-min increment) from Sunday to Saturday
low power mode shift time length	10, *15, 20, 30, 40, 50 min, 1 hr, 90 min, 2, 3, 4 hr

1.2.3.3 Adjustment and Cleaning

* Factory setting.

T-1-4

Item	Description
zoom fine adjustment	XY individually; -1.0 to +1.0% (in 0.1%-increments), *0%
center bind staple edging (if w/ saddle finisher)	start key
center bind position change (if w/ saddle finisher)	size: A3, 11X17/B4/A4R, LTRR
auto gradation correct	full correction (read test print x 3 times); quick correction (no test print)
density correct	copy, transmit; 9 steps each (set to 5 at time of shipment)

Item	Description
	copy/box, BW transmit, color transmit; 9 steps each (set to 5 at time of shipment)
roller cleaning (transfer roller)	start key
wire cleaning	start key
feeder cleaning	start key
toner replacement (if enabled in service mode)	yellow, magenta, cyan

1.2.3.4 Report

* Factory setting.

T-1-5

Item	Description
transmit (specifications)	transmission result report: *only if error, on, off
	transmitted original display: *on, off
communications control report	auto print every 100 communications: *on, off
timed	as specified: on, *off
	*00:00 to 2:59
	send/receive separate: yes, *no
fax (specifications)	fax transmission results report: *only if error, on, off
	transmitted original display: *on, off
fax communications control report	auto print every 40 communications: *ON/OFF
	specified time: ON/*OFF
	time: *00:00 to 23:59

Item	Description
	transmission/reception separate: (toggle) on, *off
fax reception results report	only if error, on, *off
fax box reception report	*ON/OFF
list print (transmit)	address list: address list 1 to 10, one-touch button list print: keys, *no
user data list (transmit)	yes, *no
user data list (fax)	yes, *no

1.2.3.5 System Control Settings

* Factory setting

T-1-6

Item	Description
system administrator info	yes using ID, address
group ID	ON/*OFF
communications control setup	yes using e-mail, fax, box
remote UI	*ON/OFF
address book limit	ID No., access NO.: ON/*OFF
device information setup	device name, location
transfer setup	reception method/condition: on, off; settings
bulletin delete	delete
auto on-line/offline shift	auto on-line shift: ON/*OFF
	auto off-line shift: ON/*OFF
LDAP server register	register, detail: edit, delete/list print
limit to function with control key Off	*limit some, limit all

1.2.3.6 Copier Settings

* Factory setting.

T-1-7

Item	Description
preference key 1	*no setting (magnification, sorter, page separation may be enabled)
preference key 2	*no setting (magnification, sorter, page separation may be enabled)
auto sort	*ON/OFF
copy wait time indication	ON/*OFF
auto vertical/horizontal rotation	*ON/OFF
standard mode change	register, initialize
copier settings initialize	yes, no

1.2.3.7 Common Transmission Settings

* Factory setting.

T-1-8

Item	Description
common transmission setup	source register (99 max.)
	user abbreviation (various settings)
	FTP transmission (ON/*OFF)
	error file clear (*ON/OFF)
	transfer error file (print always, save and print, *off)
	retry (*3 times; between 0 and 5)
	transmission function change (read: 150x150; file: TIFF/JPEG)
	routine task register (M1 through M9)
	PDF image level (data size, *average, priority on image)

Item	**Description**
	transmission screen (default, one-touch, *new)
	transmission source record (*attach, do not attach)
	color transmission gamma (y1.0, y1.4, y1.8, *y2.2)
	transmission function initialize (yes, no)
common reception functions setup	double-sided print (*on, off)
	cassette (all, *on, off)
	image reduce (*on, off)
	reception info (add, *do not add)
	2-on-1 (ON/*OFF)
fax basic setup	user telephone No. (No. input)
	line type (*20 pps, 10 pps, touch tone)
	volume adjust (alarm sound, communication sound) volume adjust (alarm sound, communication sound)
fax transmission function setup	ECM (*ON/OFF)
	pause time length (*2 sec; between 1 and 15 sec)
	auto redial (*ON/OFF)
fax reception function setup fax reception function setup	ECM (*ON/OFF)
	reception mode (*auto reception, fax/tel switch-over, modem dial-in)
	ring (ON/*OFF)
	remote reception (ON/*OFF)
	auto reception switch-over (ON/*OFF)

1.2.3.8 Box Settings

T-1-9

Item	Description
box function setup	user box setup, register (99 max.)
	read-in setup (register, initialize)
	fax box setup, register (49 max.)

1.2.3.9 Printer Settings

* Factory setting.

T-1-10

Item	Description
setting	copy count (1 to 2000: *1)
	double-sided (double-sided, *single-sided)
	blank paper save (*yes, no)
	pickup (A4, plain; no switch-over)
	print adjust (super smooth, toner density, toner save)
	layout (lengthwise bind margin; margin 0; between -30 and + 30 m)
	layout (horizontal correction 0, vertical correction 0; between -50 and +50 mm)
	error skip (yes, *no)
	print delete time length (*1, 2, 3, 6, 12, 24 hr)
	time-out (*x sec; between 5 and 300)
	RIP (yes, *no)
	sorter (*no, rotation sort, rotation group)
	transparency interleaf (*no, blank paper interleaf, printed paper interleaf)
	printer operation mode (*auto, or one of 6)

Item	Description
	emulation (*no, or 1 or 4)
	auto switch-over (LIPS, ESC-P, 15577, HP-GL, all)
	color mode (*auto, full color, mono color)
	gradation (gradation; *standard, zoom 1, zoom 2)
	gradation (graphics: *yes, image, *yes)
	halftone (text: resolution, gradation, *error diffusion)
	halftone (graphics: *resolution, gradation, error diffusion)
	halftone (image: resolution, *gradation, error diffusion)
	printer initialize (yes, no)
	LIPS, emulation (12 items)
utility	printer initialize (yes, no)

1.2.3.10 Address Book Settings

T-1-11

Item	Description
address register	various times
address list name register	register
one-touch button register	various items

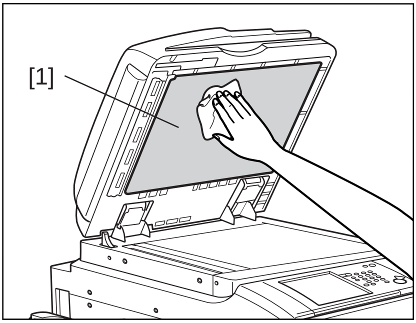
1.2.4 User Maintenance

1.2.4.1 Cleaning

The machine has some components that must be cleaned by the user on a periodical basis (about once a month); advise the user on how to clean such components:

1. Copyboard Cover

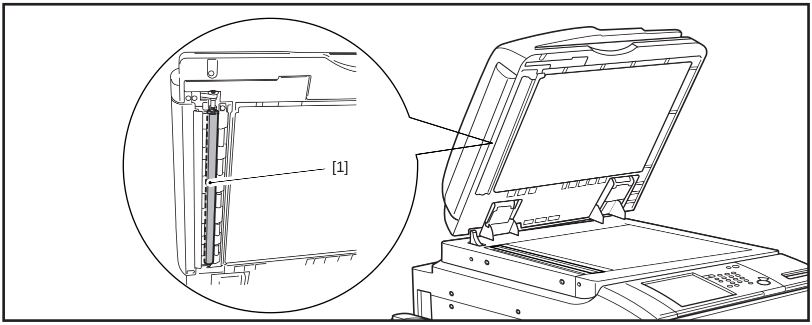
Wipe the copyboard cover [1] using a cloth moistened with water or solution of mild detergent (well wrung); then, dry wipe it with a soft cloth.



F-1-12

2. Platen Roller

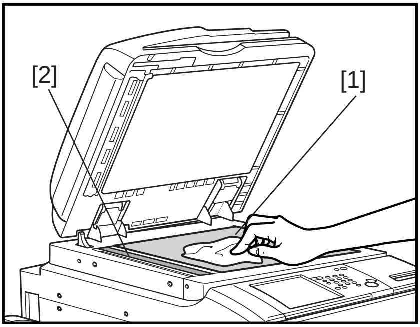
Wipe the platen roller [1] using a cloth moistened with water or solution of mild detergent (well wrung); thereafter, dry wipe it with a soft cloth.



F-1-13

3. Copyboard Glass, ADF Reading Glass

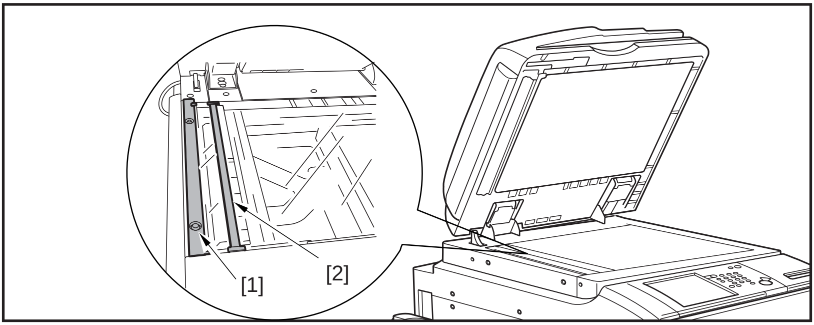
Wipe the copyboard glass [1] and the DF reading glass [2] using a cloth moistened with water or solution of mild detergent (well wrung); thereafter, dry wipe them with a soft cloth.



F-1-14

4. DF Glass Retainer, Edge Guide

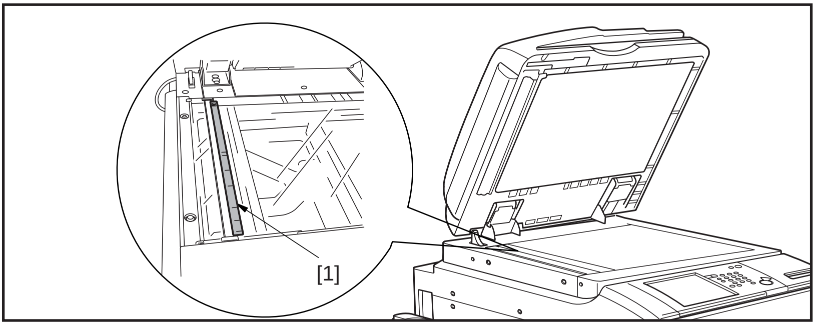
Wipe the DF glass retainer [1] and the edge guide [2] using a cloth moistened with water or solution of mild detergent (well wrung); thereafter, dry wipe them with a soft cloth.



F-1-15

5. Vertical Size Plate

Wipe the vertical size plate [1] using a cloth moistened with water or solution of middle detergent (well wrung); thereafter, dry wipe it with a soft cloth.



F-1-16

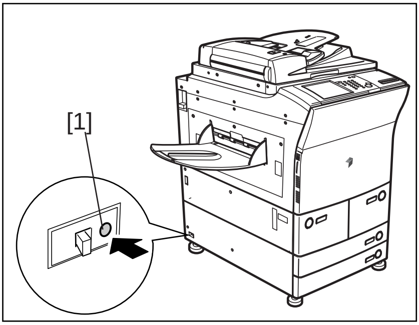
1.2.4.2 Inspection

The machine is equipped with a breaker to protect against over-current and leakage current, and it is important to check the operation of the leakage breaker to ensure a higher level of safety.

Advise the user to check the breaker as follows on a periodical basis (about once a month) and keep a record of the checks:

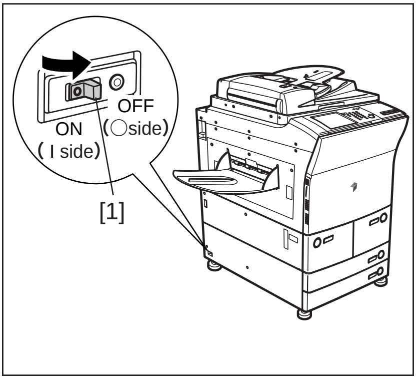
1) Turn on the main power switch

2) Push the test button [1] of the breaker using the tip of a ball-point pen or the like.



F-1-17

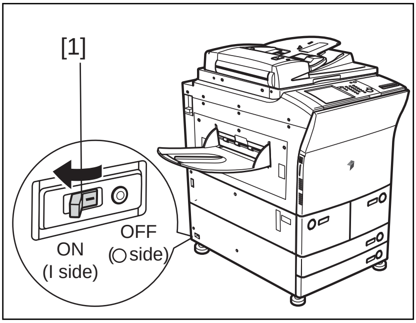
3) Check to see that the breaker switch [1] has shifted to the OFF side, thus cutting off the power.


OFF
(○side)
ON
(I side)
[1]

F-1-18

4) Turn off the main power switch.

5) Shift the breaker switch [1] back to the ON side.


[1]
OFF
(○side)
ON
(I side)

F-1-19

⚠ After the check, be sure that the breaker switch has shifted fully to the ON side. If it has stopped between the ON and the OFF sides, push it over to the OFF side and then back to the ON side.

6) Turn on the main power switch.

1.2.5 Safety

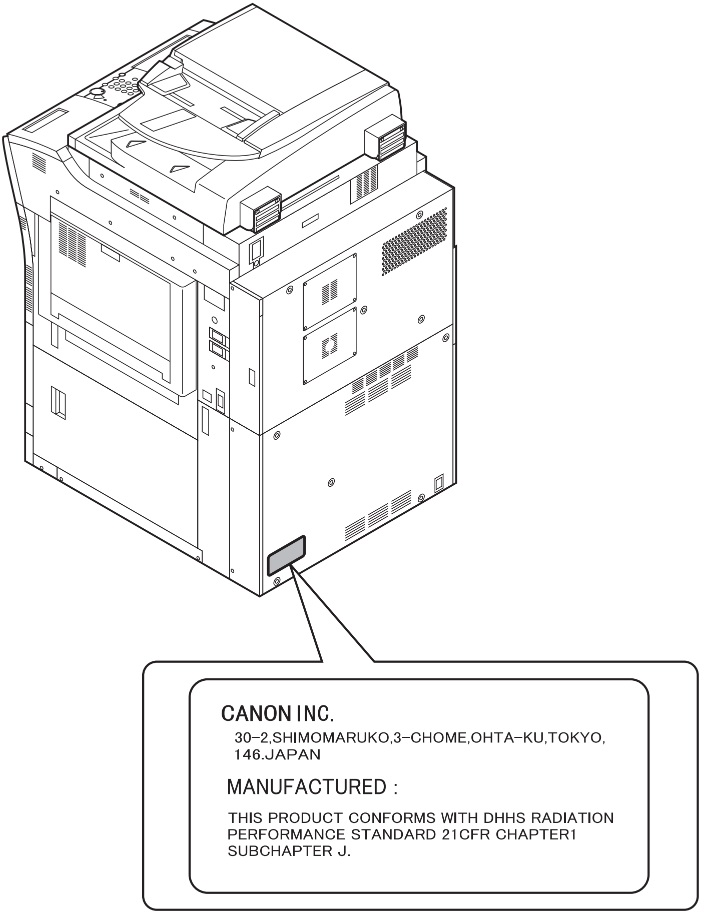
1.2.5.1 Safety of the Laser Light

Laser light can prove to be hazardous to the human body. The machine's laser unit is fully enclosed in a protective housing and external covers so that its light will not escape outside as long as the machine is used normally.

1.2.5.2 Regulations by the us Center for Devices and Radiological Health

The Center for Devices and Radiological Health of the US Food and Drug Administration put input force a set of regulations to govern laser products on August 2, 1976. These regulations apply to laser products that are manufactured on and after August 1, 1976, and the sale of laser products is prohibited inside the US without indicating compliance with the regulations.

The following label is used to indicate certification under CDRH regulations, and all laser products sold inside the US are required to bear the label.



CANON INC.
30–2,SHIMOMARUKO,3–CHOME,OHTA–KU,TOKYO,
146.JAPAN

MANUFACTURED :

THIS PRODUCT CONFORMS WITH DHHS RADIATION PERFORMANCE STANDARD 21CFR CHAPTER1 SUBCHAPTER J.

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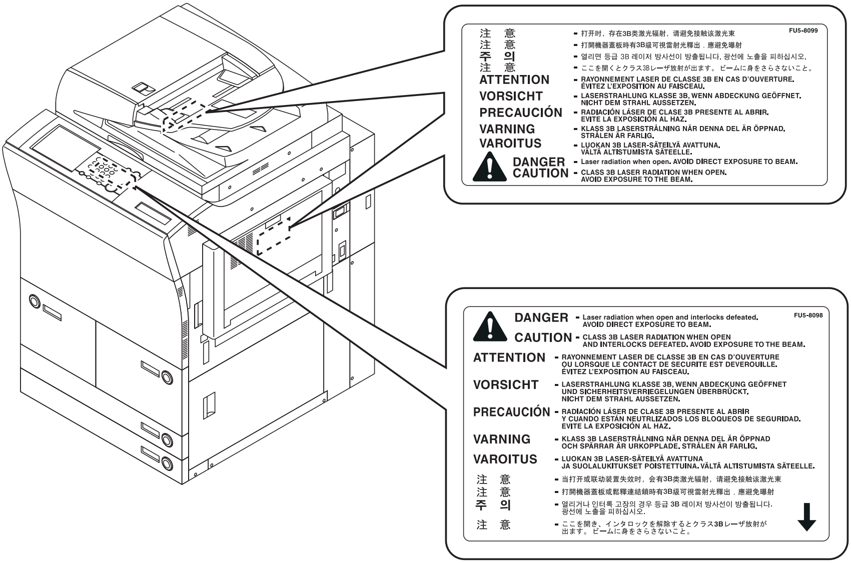
⚠ The text on the label may differ from model to model.

1.2.5.3 Handling the Laser Unit

Points to Note When Servicing Areas Around the Laser Scanner System

- do not put an item with a high reflectance (e.g., screwdriver) into the laser path.
- remove watches and rings before starting the work (they tend to reflect the laser beam, possibly exposing the eye).

The light from the machine's laser unit is red. The covers of the machine that can reflect the laser beam are identified by a warning label (attached as shown). If you must remove any of these covers, be sure to work while paying full attention to the laser light. The machine's laser unit is not designed for servicing in the field.


注 意 - 打开时，存在3B类激光辐射，请避免接触该激光束
FU5-8099
注 意 - 打開機器蓋板時有3B級可視雷射光釋出，應避免曝射
주 의 - 열리면 등급 3B 레이저 방사선이 방출됩니다. 광선에 노출을 피하십시오.
注 意 - ここを開くとクラス3Bレーザ放射が出ます。 ビームに身をさらさないこと。
ATTENTION - RAYONNEMENT LASER DE CLASSE 3B EN CAS D'OUVERTURE. ÉVITEZ L'EXPOSITION AU FAISCEAU.
VORSICHT - LASERSTRAHLUNG KLASSE 3B, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
PRECAUCIÓN - RADIACIÓN LÁSER DE CLASE 3B PRESENTE AL ABRIR. EVITE LA EXPOSICIÓN AL HAZ.
VARNING - KLASS 3B LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STRÅLEN ÄR FARLIG.
VAROITUS - LUOKAN 3B LASER-SÄTEILYÄ AVATTUNA. VÄLTÄ ALTISTUMISTA SÄTEELLE.
DANGER - Laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION - CLASS 3B LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM.
DANGER - Laser radiation when open and interlocks defeated. AVOID DIRECT EXPOSURE TO BEAM.
FU5-8098
CAUTION - CLASS 3B LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO THE BEAM.
ATTENTION - RAYONNEMENT LASER DE CLASSE 3B EN CAS D'OUVERTURE OU LORSQUE LE CONTACT DE SECURITE EST DEVEROUILLE. ÉVITEZ L'EXPOSITION AU FAISCEAU.
VORSICHT - LASERSTRAHLUNG KLASSE 3B, WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNGEN ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
PRECAUCIÓN - RADIACIÓN LÁSER DE CLASE 3B PRESENTE AL ABRIR Y CUANDO ESTÁN NEUTRLIZADOS LOS BLOQUEOS DE SEGURIDAD. EVITE LA EXPOSICIÓN AL HAZ.
VARNING - KLASS 3B LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRRAR ÄR URKOPPLADE. STRÅLEN ÄR FARLIG.
VAROITUS - LUOKAN 3B LASER-SÄTEILYÄ AVATTUNA JA SUOLALUKITUKSET POISTETTUINA. VÄLTÄ ALTISTUMISTA SÄTEELLE.
注 意 - 当打开或联动装置失效时，会有3B类激光辐射，请避免接触该激光束
注 意 - 打開機器蓋板或鬆釋連結鎖時有3B級可視雷射光釋出，應避免曝射
주 의 - 열리거나 인터록 고장의 경우 등급 3B 레이저 방사선이 방출됩니다. 광선에 노출을 피하십시오.
注 意 - ここを開き、インタロックを解除するとクラス3Bレーザ放射が出ます。 ビームに身をさらさないこと。

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1.2.5.4 Safety of Toner

The machine's toner is a non-toxic material made of plastic, iron, and small amounts of dye.

⚠Do not throw toner into fire. It may cause explosion.

Toner on Clothing or Skin

1. If your clothing or skin has come into contact with toner, wipe it off with tissue; then, wash it off with water.
2. Do not use warm water, which will cause the toner to jell and fuse permanently with the fibers of the cloth.
3. Do not bring toner into contact with plastic material. It tends to react easily.

1.2.6 Product Specifications

1.2.6.1 Specifications

Copyboard	fixed
Body	console
Light source type	xenon lamp
Lens type	fixed focus, lens array
Photosensitive medium	A-Si drum (1 pc.)
Image reading method	light-receiving element (RGB line CCD)
Reproduction method	by laser beam, indirect electro-photographic
Exposure method	by laser
Copy density adjustment function	auto or manual
Charging method	by corona
Development method	toner projection
Development method (color)	dry, 2-component, toner projection
Development method (mono)	dry, 1-component, toner projection
Attraction method	no
Transfer method	by intermediate transfer belt
Transfer method (primary transfer)	by charging roller
Transfer method (secondary transfer)	by charging roller
Separation method	by curvature separation + static eliminator
Pickup method	from cassette, manual feeder, paper deck
Cassette pickup method	separation retard

Paper deck pickup method	separation retard
Multifeeder pickup method	separation retard
Drum cleaning method	by blade + magenta roller
Trasnsfer cleaning method	by blade
Fixing method	by roller + external heating roller
Delivery method	face-down, face-up
Contrast adjustment function	auto
Toner level detection function	yes (Bk: piezoelectric; CMY: optical)
Toner type	Bk: magnetic, negative toner; CMY: non-magnetic negative toner
Toner supply type	from toner cartridge (CMY: 240 g), from toner bottle (Bk: 2000 g)
Original type	sheet, book, 3-D object (2 kg max.)
Maximum original size	297 x 432 mm
Original size detection function	by fixed sensor in combination with CCD: in relation to opening/closing of copyboard cover
Reproduction ratio	100% (1:1), reduce (1:0.250, 1:0.500, 1:0.611, 1:0.707, 1:0.816, 1:0.865), enlarge (1:1.154, 1:1.224, 1:1.414, 1:2.000, 1:4.000), between (1:0.250 to 4.000) (25% and 400%, in 1%-increments)
Warm-up time	8 min 50 sec or less at power-on (at 20 deg C room temperature)
Print area	maximum image guarantee area: 305x466.5 mm; maximum print area: 314.5 x 466.5 mm (single-side) maximum print area: 310.0 x 466.5 mm (double-side)
Image margin (leading edge)	40 +1.5/-1.0 (2nd side: 4.0 +1.5/-1.0)
Image margin (trailing edge)	2.0+1.5/-1.5
Image margin (left/right)	2.5 +1.5/-1.5 (2nd side: 2.5 +2.5/-2.0)

Non-image width (leading edge)	4.0 +1.5/-1.0 (w/ ADF: 4.5 +1.8/-1.8)
Non-image width (trailing edge)	2.0 +1.5/-1.5 (w/ ADF: 2.0 +1.8/-1.8)
Non-image width (left/ right)	2.5 +1.5/-1.5 (w/ ADF: 2.5 +2.5/-2.0)
Number of gradations	reader unit: 256; engine unit: 256
Reading resolution	600×600dpi
Printing resolution	1200 (equivalent) x 600 dpi (North American model only); 9600 (equivalent) x 600 dpi (non-North American models)
First print time	mono color: 53 sec (A4, plain paper; 64 to 105 g/m2) full color: 12.2 sec (A4, plain paper; 64 to 105 g/m2)
Print speed (A4)	mono color: 68 prints/min (A4; 64 to 209 g/m2) full color: 15.5 prints/min (A4, plain paper; 64 to 105 g/m2)
Cassette paper size	cassette 3/4: A5R, B5, B5R, A4, A4R, B4, A3, 279x432 mm (11x17), 305x457 mm (12x18), 330x483 mm (13x19), 320x450 mm (SRA3), LGL, LTR, LTRR, Executive (horizontal) STMTR
Paper deck paper size	front deck, side deck: B5, A4, LTR
Multifeeder paper size	100x148 mm (min.) to 330x483 mm (max.)
Cassette paper type	cassette 3/4: plain paper (;764 to 105 g/m2), heavy paper (209 g/m2 max.), recycled paper (64 to 105 g/m2), colored paper (80 g/m2), index paper (80 g/m2), transparency
Multifeeder tray paper type	plain paper (64 to 105 g/m2), heavy paper (250 g/m2 max.), recycled paper (64 to 105 g/m2), colored paper (80 g/m2), postcard, transparency, tracing paper, label paper, postcard
Paper deck paper type	deck left/right: plain paper (64 to 105 g/m2), heavy paper (209 g/m2 max.), recycled paper (80 g/m2), colored paper (80 g/ mm2), label paper (80 g/m2)
Duplex paper type	plain paper (64 to 105 g/m2), recycled paper (80 g/m2), color paper (80 gm/2), heavy paper (163 g/m2 max.), heavy paper (163 g/2 max.; 209 g/m2 for color print; 209 g/m2 for black-and-white print)
Cassette capacity	600 sheets (64g/m2) 550 sheets (80g/m2)

Multifeeder tray capacity	100 sheets(64, 80g/m2)
Paper deck capacity	1700 sheets (64g/m2) 1500 sheets (80g/m2)
Duplex method	through path
Delivery tray stack	250 sheets (A4, plain paper, 80 g/m2), 50 sheets (transparency)
Continuous reproduction	9999 prints max.
Memory	main controller: RAM512 MB (768 MB max.)
Hard disk	40GB
Low-power mode	default: 15 min (between 10 and 240 min)
Auto power off	default: 60 min (between 10 and 240 min)
Auto gradation correction	yes
Operating environment (temperature range)	15 to 30 deg C
Operating environment (humidity range)	25% to 80%
Operating environment (atmospheric pressure)	810.6 to 1013.3 hpa (0.8 to 1.0 atm)
Noise	standby: 55 dB or less; printing: 78 dB or less
Power supply rating	100V/120V/230V
Power consumption (maximum)	1500 W or less
Power consumption	standby: 450 Wh (reference only); continuous printing: 1300 Wh (reference only)
Ozone	0.035 ppm or less (max.; 0.02 ppm or less on average)
Dimensions	975 (W) x 1100 (L) x 1570 (H) mm
Weight	230 kg (approx.; excluding toner cartridge)

1.2.7 Function List

1.2.7.1 Print Speed

T-1-12

Paper type	**Paper size**	**Cassette/deck (single-sided)**		**Manual feeder (singe-sided)**		**Cassette/deck (double-sided)**	
		Color	**Mono**	**Color**	**Mono**	**Color**	**Mono**
Plain paper mode (64 to 105 g/m2)	A3	7.8	28	7.8	20	3.9	17
	11"×17"(279 mm×432mm)	7.8	28	7.8	20	3.9	17
	12"×18"(305 mm×458mm)	5.2	25	5.2	17	2.6	15
	13"×19"(330 mm×482mm)	5.2	25	5.2	17	2.6	15
	B4, LGL	7.8	34	7.8	23	3.9	18
	A4R, LTRR, B5R	7.8	42	7.8	29	3.9	19
	A4, LTR, B5	15.5	68	7.8	35	7.8	34
	A5R	15.5	68	7.8	35	7.8	34
Heavy paper mode 1 (105 to 163 g/m2)	A3	4.0	21	4.0	20	2.0	10
	11"×17"(279 mm×432mm)	4.0	21	4.0	20	2.0	10
	12"×18"(305 mm×458mm)	3.0	18	3.0	17	1.5	9
	13"×19"(330 mm×482mm)	3.0	17	3.0	17	1.5	8
	B4, LGL	4.0	25	4.0	23	2.0	12
	A4R, LTRR, B5R	4.0	31	4.0	29	2.0	15
	A4, LTR, B5	8.4	41	4.0	35	4.2	20
	A5R	8.4	42	4.0	35	4.2	21

Paper type	**Paper size**	**Cassette/deck (single-sided)**		**Manual feeder (singe-sided)**		**Cassette/deck (double-sided)**	
		Color	**Mono**	**Color**	**Mono**	**Color**	**Mono**
Heavy paper mode 2 (164 to 209 g/m2)	A3	2.8	21	2.8	20	---	10
	11"×17"(279 mm×432mm)	2.8	20	2.8	20	---	10
	12"×18"(305 mm×458mm)	2.3	18	2.3	17	---	9
	13"×19"(330 mm×482mm)	2.3	17	2.3	17	---	8
	B4, LGL	2.8	22	2.8	22	---	11
	A4R, LTRR, B5R	2.8	27	2.8	27	---	13
	A4, LTR, B5	6.2	40	2.8	35	---	20
	A5R	6.2	36	2.8	35	---	18
Heavy paper mode 3 (210 to 253 g/m2)	A3	---	---	2.8	20	---	---
	11"×17"(279 mm×432mm)	---	---	2.8	20	---	---
	12"×18"(305 mm×458mm)	---	---	2.3	17	---	---
	13"×19"(330 mm×482mm)	---	---	2.3	17	---	---
	B4, LGL	---	---	2.8	22	---	---
	A4R, LTRR, B5R	---	---	2.8	27	---	---
	A4, LTR, B5	---	---	2.8	35	---	---
	A5R	---	---	2.8	35	---	---
Transparency	A4, LTR	2.8	40	2.8	35	---	---
Postcard	2-pane postcard	---	---	2.8	35	---	---
	Gvn postcard	---	---	2.8	35	---	---

Paper type	Paper size	Cassette/deck (single-sided)		Manual feeder (singe-sided)		Cassette/deck (double-sided)	
		Color	Mono	Color	Mono	Color	Mono
Tab sheet	A4, LTR	4.0 (Under 163g/m2) 2.8 (164g/m2 to 203g/m2)	42	---	---	---	---

(unit: prints/min)

1.2.7.2 Paper Type

T-1-13

Paper type	Paper size	Source of paper		
		Cassette	Deck (left/right)	Manual feeder
Plain paper (64 to 105g/m2) Eco paper Recycled paper Heavy paper mode 1,2 (106 to 209g/m2)	A3, B4, A4R, 279mm×432mm(11"×17"), LGL, LTRR	yes	no	yes
	A4, B5, LTR	yes	yes	yes
	B5R	yes	no	yes
	A5R	yes	no	yes
	305mm×457mm(12"×18"), 330mm×482mm(13"×19")	yes	no	yes
	Executive	yes	no	yes
	Executive-R	no	no	no

Paper type		Paper size	Source of paper		
			Cassette	**Deck (left/ right)**	**Manual feeder**
Heavy paper mode 3 (210 to 250g/2m)		A3, B4, A4R, 279mm×432mm(11" ×17"), LGL, LTRR	no	no	yes
		305mm×457mm(12" ×18"), 330mm×482mm(13" ×19")	no	no	yes
Special paper	transparency	A4, LTR	yes	no	yes
	Postcard	gvn postcard, 2-pane postcard	no	no	yes
	label sheet	A4, A4R, LTR, LTRR	no	no	yes
	index paper	A4, LTR	yes	no	no
	tracing paper	A3, B4, A4R, A4, B5R, B5	no	no	yes

1.2.7.3 Accessories

The following accessories are offered for the machine:

1. Finisher-R1
2. Saddle Finisher-R2
3. Additional Finisher Tray-A1 (Japanese model only)
4. Puncher Unit-L1
5. Side paper Deck-U1
6. Shift Tray -C1
7. Image Conversion Board-A2
8. Super G3 Fax Board-P1
9. PDL Expansion Kt (LIPS)-C1 (Japanese model only)
10. Color Network Printer Expansion Kit-C1 (non-Japanese model only)

11. SEND Expansion Kit-D1P
12. SEND Expansion Kit-D1U (Japanese and European models only)
13. UFR & Scanner Kit-C1
14. Color Network Multi-PDL Printer Kit-C1 (non-Japanese model only)
15. Card Reader-C1
16. Card Reader Mounting Kit-C1
17. Delivery Tray-K1
18. Original Holder-K1
19. Stamp Unit-A1
20. Key Switch Unit-A2
21. Security Kit-A1P/A1U
22. 256-MB Expansion RAM-A2
23. USB Interface Board-A3
24. TokenRing Interface Adapter iN-TR2 (US model only)
25. Color imagePass-D1 (US model)
    Color Network Printer unit-D1 (Other model)

Chapter 2

Installation

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2.1 Making Pre-Checks

2.1.1 Selecting the Site of Installation

Be sure that the site of installation satisfies the following requirements; if possible, visit the user's before delivery of the machine:

- There must be a properly grounded power outlet that is rated as indicated (+/-10%) and that may be used exclusively by the machine.

- The temperature of the site must be between 15 and 30 deg C and humidity, between 25% and 80%. The machine may not be installed near a water faucet, water boiler, humidifier, or refrigerator.

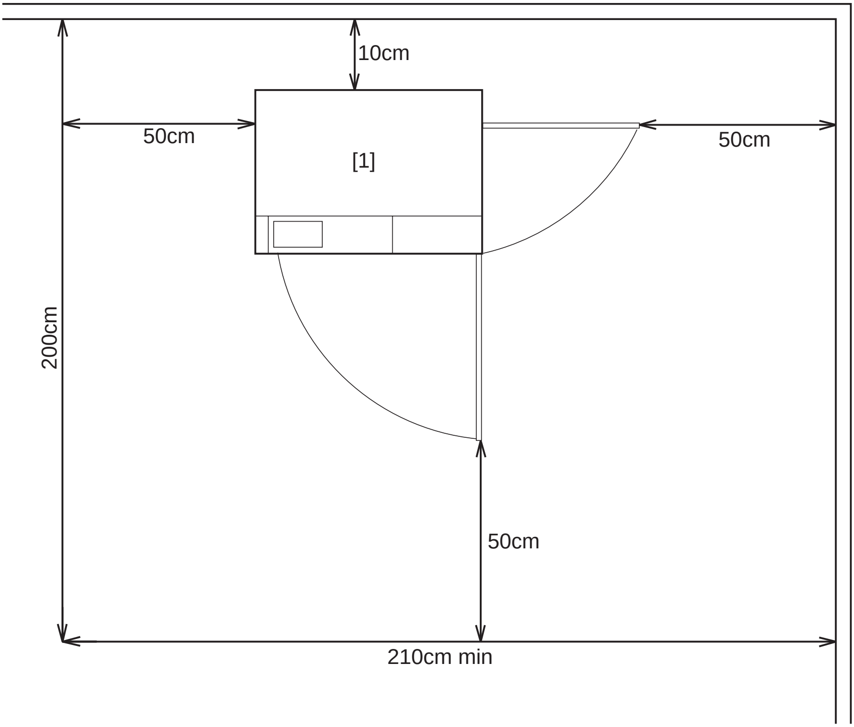
- The site must not be near a source of fire or in an area subject to dust or ammonium gas. If the area is exposed to the direct rays of the sun, the windows must be furnished with curtains.

- The site must be well ventilated. However, the machine must not be installed near the air vent of the room. The ozone generated by the machine while in operation is not of a level that can harm the health of the individuals around the machine. Nevertheless, some may find it to be unpleasant, and the room must be ventilated often.

- The machine must be placed on a level floor so that all its feet remain in contact with the floor and the machine will remain level.

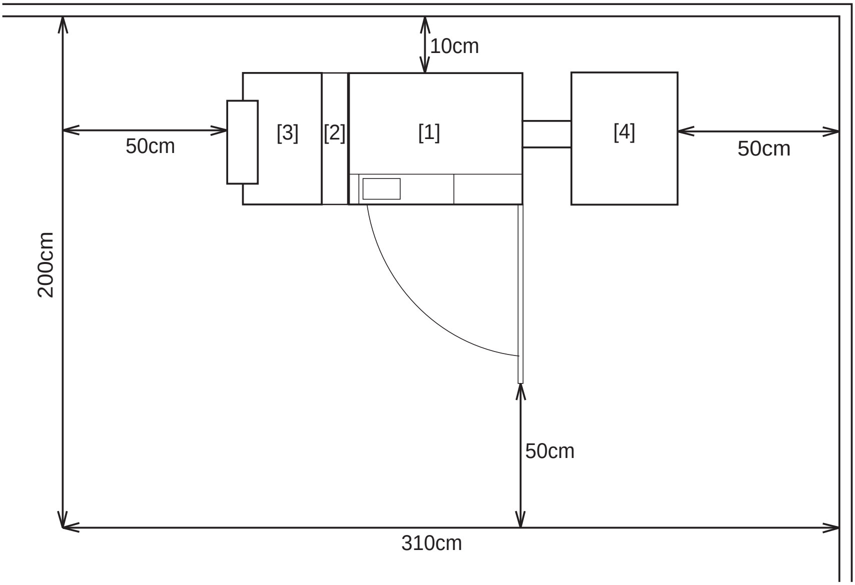
- There must be enough space around the machine. The following diagram shows the minimum dimensions; whenever possible, be sure there will be more space than indicated:

- Copier [1]


10cm
50cm
[1]
50cm
200cm
50cm
210cm min

F-2-1

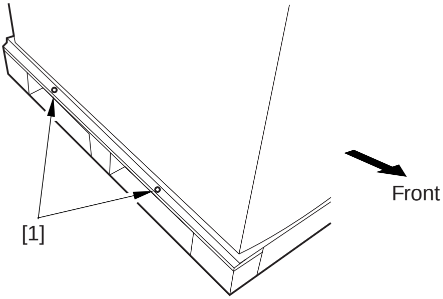
- Copier [1] + Punch Unit [2] + Finisher [3] + Side Deck [4]


10cm
[3]
[2]
[1]
[4]
50cm
50cm
200cm
50cm
310cm

F-2-2

- The machine will be placed on the side of the slope plate having a pin hole [1]. Be sure that the space will be on this side (left side).

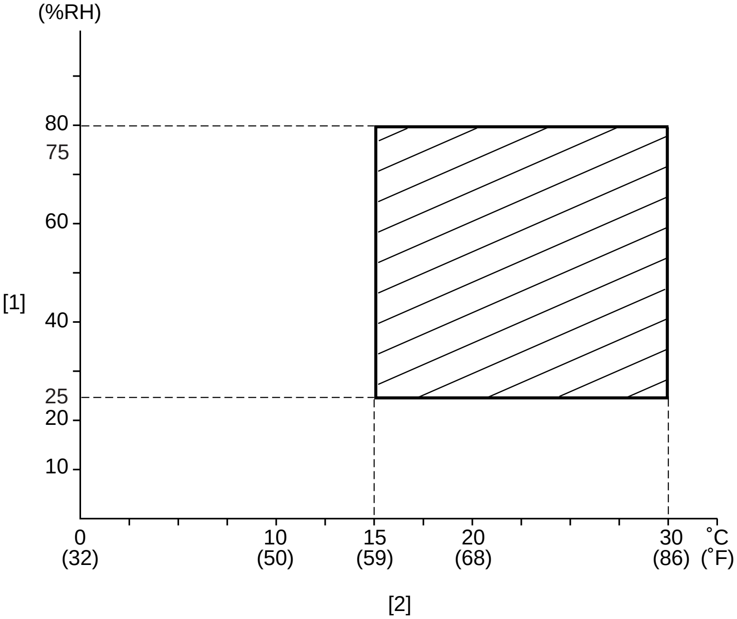
The side of the slope plate having a pin hole (left) is where the delivery side of the machine will be, with the front of the machine facing the side indicated by the arrow.



F-2-3

2.1.2 Installation Environment

Be sure that the environment of the site meets the following requirements:



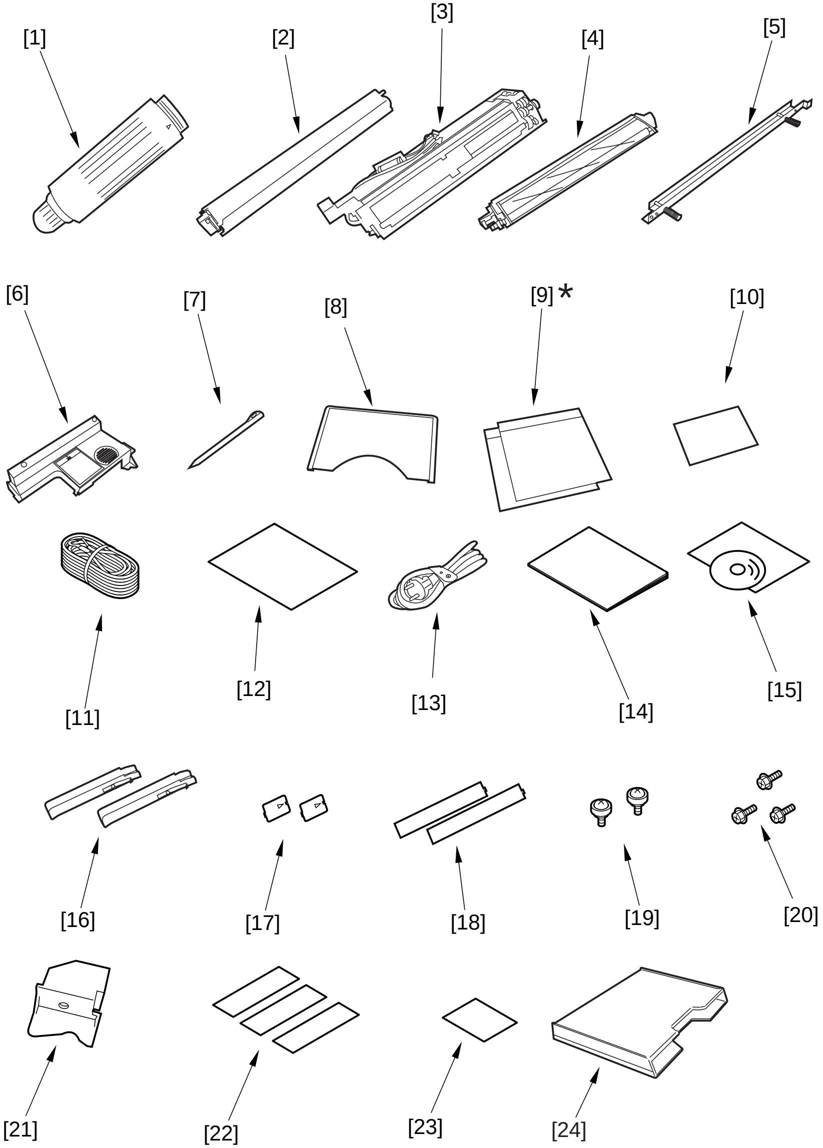
F-2-4

[1] Humidity

[2] Temperature

2.1.3 Checking the Contents

The following shows the contents of the shipping box found with the machine:


[1]
[2]
[3]
[4]
[5]
[6]
[7]
[8]
[9] *
[10]
[11]
[12]
[13]
[14]
[15]
[16]
[17]
[18]
[19]
[20]
[21]
[22]
[23]
[24]

F-2-5

[1] Black toner bottle (black; only for 100/230V AU model)........1 pc.

[2] Color toner cartridge (cyan, magenta, yellow;
only for 100V/230V AU model)..................................1 pc. each
[3] Black developing assembly (black).............................1 pc.
[4] Color developing assembly (cyan, magenta, yellow).............1 pc. each
[5] Black developing assembly locking plate ....1 pc.
[6] Process unit cover ....1 pc.
[7] Touch pen ....1 pc.
[8] Service book case ....1 pc.
[9] Cassette size label* ....2 pc.
[10] ADF size label ....1 pc.
[11] Grounding cord (100-V model only) ....1 pc.
[12] QR sheet (100-V model only) ....1 pc.
[13] Power cord (230-V model only) ....1 pc.
[14] Service book ....1 pc.
[15] User's Manual ....1 pc.
[16] Grip ....2 pc.
[17] Pickup assembly face place ....2 pc.
[18] Delivery assembly face plate ....2 pc.
[19] Binding screw (M4x8) ....2 pc.
[20] RS tightening screw (M4x8) ....3 pc.
[21] Left deck locking plate ....1 pc.
[22] No Copy label (non-100-V model) ....3 pc.
[23] Glass Cleaning instructions label (non-100-V model) ....1 pc.
[24] Original holder (120V model only).............................1 pc.

* Found inside the cassette 3 (upper cassette).

2.2 Unpacking and Installation

2.2.1 Before Starting the Work

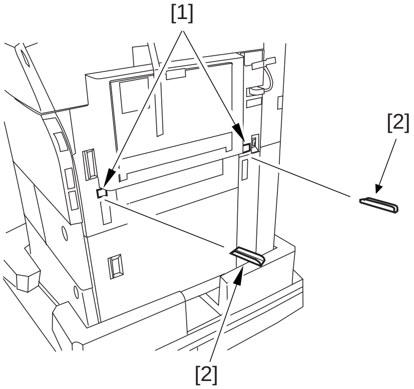
Keep the following in mind when installing the machine:

⚠

1. When a machine is moved from a cold to warm location, condensation can occur in its pickup/feeding assembly, ultimately causing image faults. As necessary, leave the machine alone for at least 1 hour without unpacking, and start the work when it has fully become used to the room temperature.
(The term "condensation" refers to a symptom in which droplets of water occur on the surface of a metal object brought in from a cold to warm location as the result of rapidly cooling vapor around it.)
2. The machine weighs about 230 kg. Be sure to work in a group of 4 persons when lifting it.
3. Be sure to turn the 2 adjusters (front) found on the bottom of the machine clockwise to release them. These adjusters can slip off the machine when the machine is moved. Take care not to lose them.

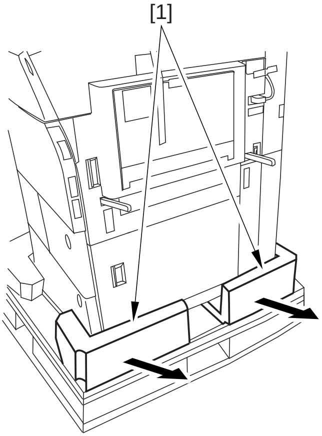
2.2.2 Unpacking the Machine

1) Open the shipping box, and remove the plastic covers.
2) Fit the 2 included grips [2] into the grip slots [1] found on the pickup side of the machine.



F-2-6

3) While holding the grips on the pickup side (front, rear), lift the machine slightly, and remove the pad [1] in the direction of the arrow.
(weight of the machine: about 230 kg)

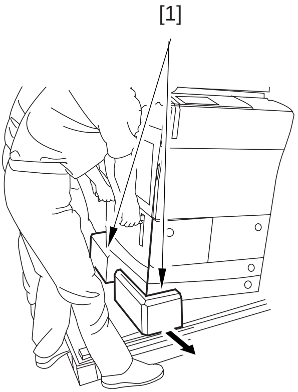


F-2-7

4) While holding the grips on the delivery side (front, rear), lift the machine slightly, and remove the pad [1] in the direction of the arrow.

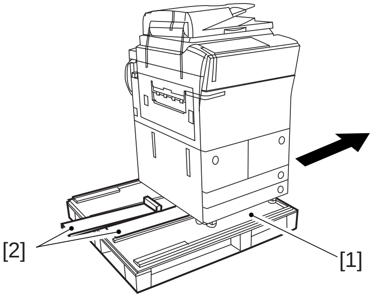
At this time, do not lift the machine more than necessary. Otherwise, you can lose the balance.

(weight of the machine: about 230 kg)



F-2-8

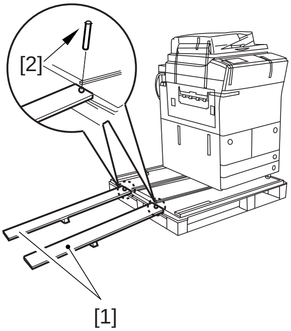
5) Move the machine in the direction of the arrow; then, take out the 2 slope plates [2] from the middle of the skid [1].



F-2-9

6) Detach the 2 pins taped to the back of the slope plate.

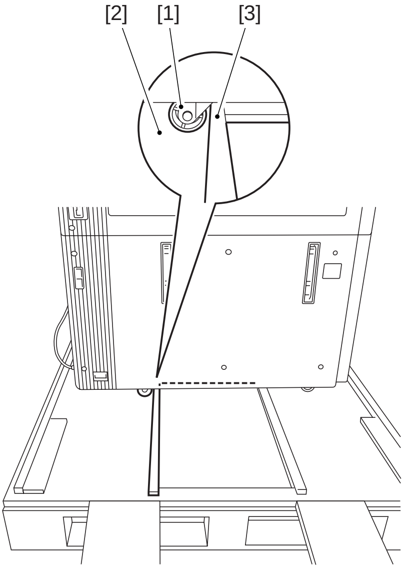
7) Turn over the slope plate [1], and set it as shown; then, match the skid and the slope plate by their pin holes, and fit the pin [2] (1 pc. each).



F-2-10

⚠

Check to make sure that the caster [1] has not rolled off the skid [2]. Also, be sure that it has not ridden over the edge [3] of the skid.

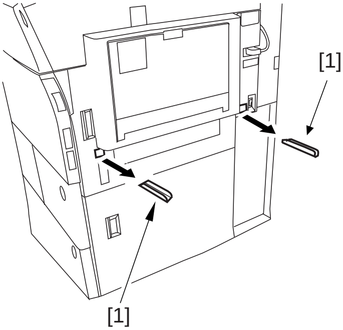


F-2-11

8) While holding the grips on the delivery side of the machine, move the machine along the slope plates and off the skid.

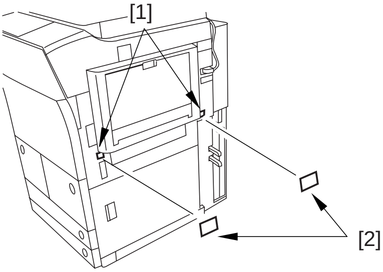
9) Remove the packing tape from the machine.

10) Remove the 2 grips from the pickup side.



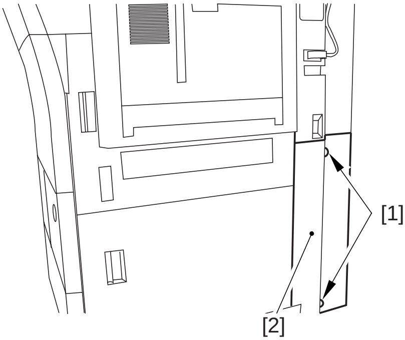
F-2-12

11) Fit the 2 included pickup assembly face plate [2] over the holes [1] from which you have removed the grips.



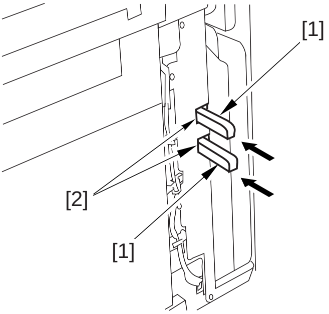
F-2-13

12) Remove the 2 screws [1], and rear right cover [2].



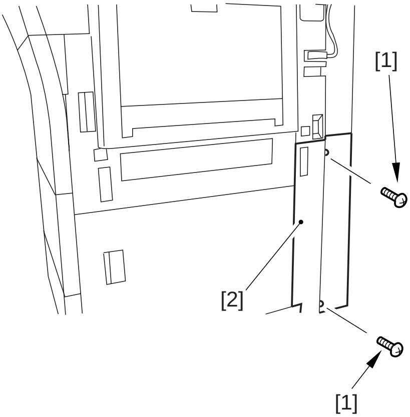
F-2-14

13) Fit the 2 grips [1] you removed in the foregoing step in the compartment [2] found at the rear right of the machine.



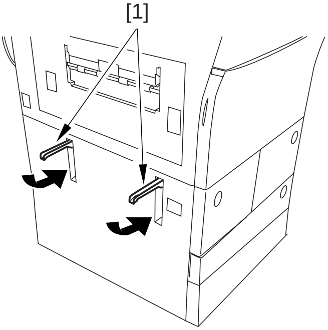
F-2-15

14) Fix the right cover (lower rear) [2] in place with 2 screws [1].



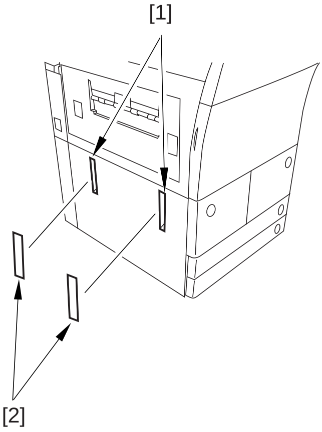
F-2-16

15) Shift down the 2 grips [1] on the delivery side as shown so that they are inside the machine.



F-2-17

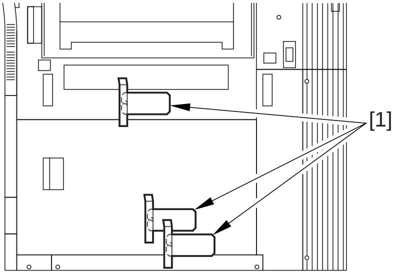
16) Fit the 2 included delivery assembly face plates over the holes [1] in which you have fitted the grips.



F-2-18

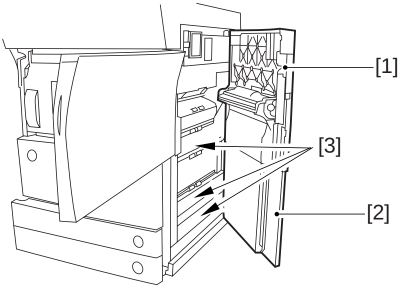
2.2.3 Mounting the Pickup Assembly

1) Detach the 3 shipping tags [1] from the upper right cover and the lower right cover.



F-2-19

2) Open the upper right cover [1] and the lower right cover [2]; then, remove the 3 unlocking spacers [3] from the pickup slot of the right deck and the cassettes.



F-2-20

3) Close the upper right cover and the lower right cover.

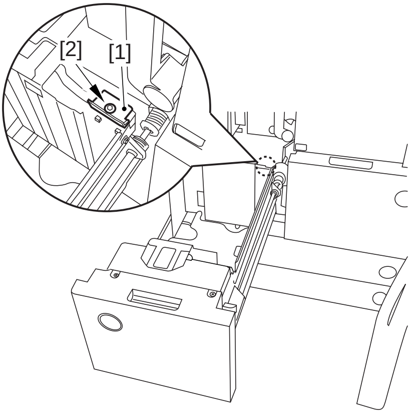
4) Push the release button, and slide out the left deck.

⚠

The left deck is not supported by its locking plate, and the deck assembly may not slide out in response to a press on the release button. If so, slide out the deck assembly by hand.

5) Open the front cover.

6) Match the included left deck locking plate [1] against the 2 holes in the left deck rear side plate; then, secure it in place using a screw (RS tightening; M4x8) [2].



F-2-21

⚠

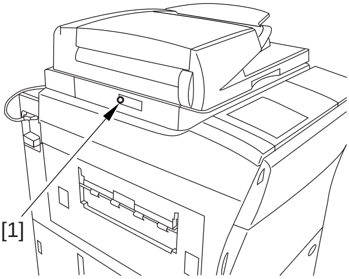
- When mounting the left deck locking plate, take care not to trap the left deck cable by the plate. (To facilitate the work, try lightly pushing down on the deck cable.)
- Pull lightly on the deck cable to see that the cable is not trapped.

7) Close the left deck.

2.2.4 Mounting the Scanner System

1) Open the ADF, and remove the packing material.

2) Remove the screw [1] used to fix the scanner in place.

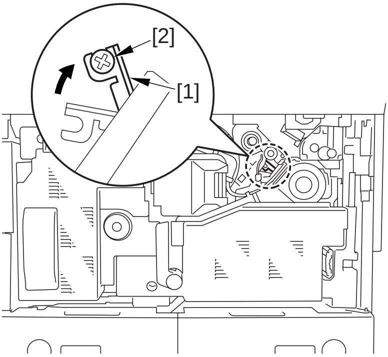


F-2-22

⚠ Advise the user to store away the screw used to fix the scanner system in plate. It will be used when relocating the machine in the future.

2.2.5 Locking the Primary Transfer Roller in Place

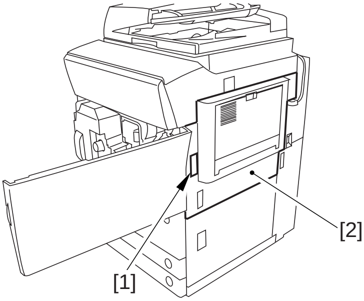
1) Lift the primary transfer roller locking lever [1] in the direction of the arrow to lock the roller in place; then, fix the primary transfer roller locking lever [1] in place using the included binding screw (M4x8) [2].



F-2-23

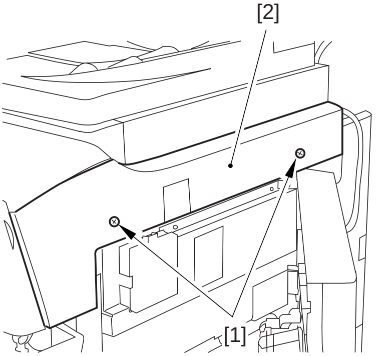
2.2.6 Before Mounting the Developing Assembly

1) Pull the grip [1] toward the front to fully open the upper right cover [2].



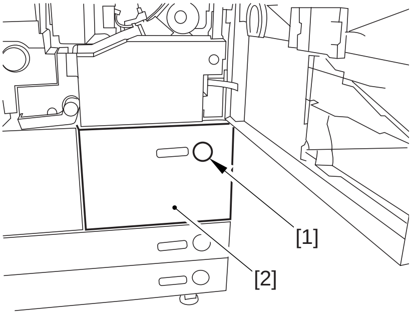
F-2-24

2) Remove the 2 screws [1], and detach the right cover (upper) [2].



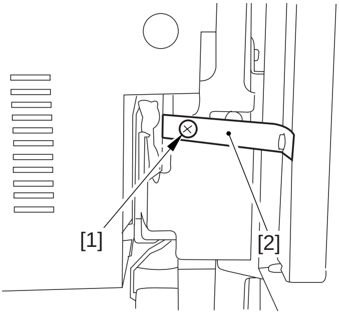
F-2-25

3) Push the release button [1] of the right deck, and slide out the right deck [2].



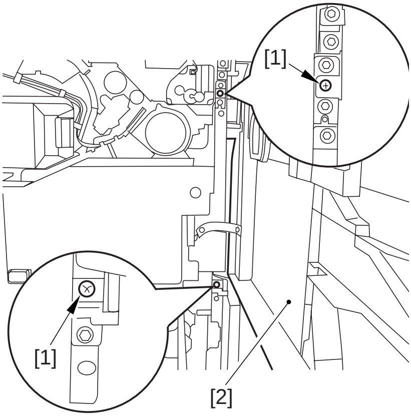
F-2-26

4) Remove the screw [1] found at the lower right; then, detach the front cover strap [2].



F-2-27

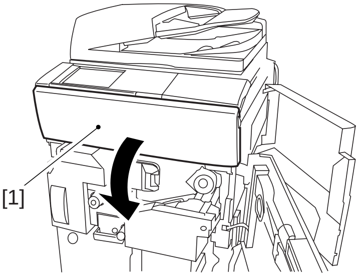
5) Remove the 2 screws [1] (binding) of the front cover; then, fully open the front cover [2].



F-2-28

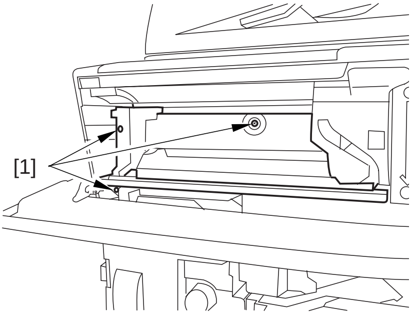
6) Close the right deck.

7) Open the black toner supply cover [1].



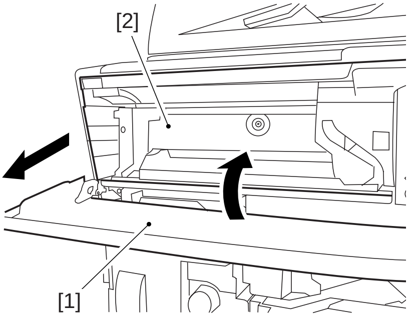
F-2-29

8) Remove the 3 screws [1].



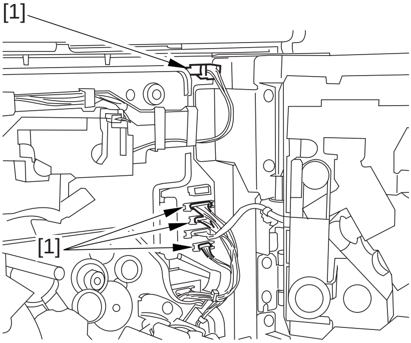
F-2-30

9) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



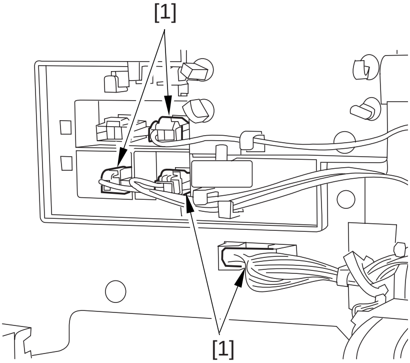
F-2-31

10) Disconnect the 4 connectors [1] found at the upper right.



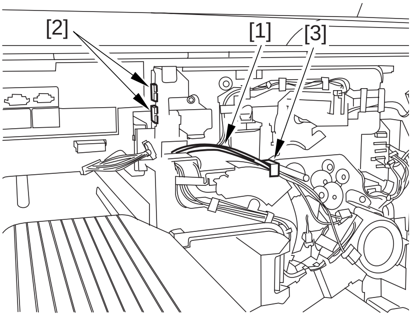
F-2-32

11) Disconnect the 4 connectors [1] found at the upper left.



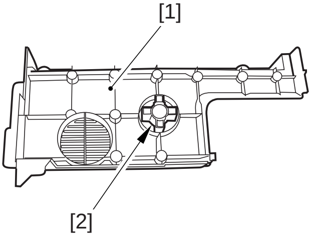
F-2-33

12) Free the connector cable [1] of the high-voltage side from the 2 wire saddles [2] to avoid trapping it. (Keep it on the cable hook [3] during the work.)



F-2-34

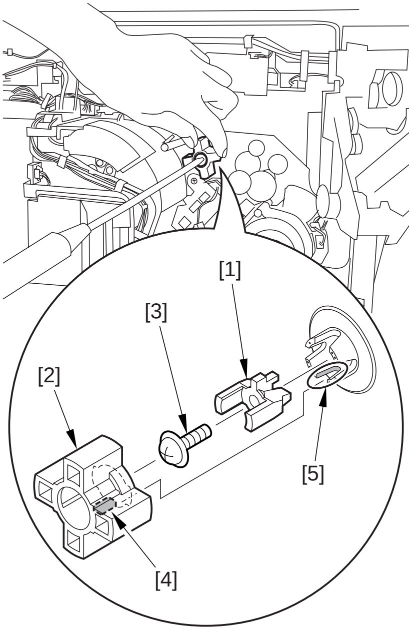
13) Take out the process unit cover [1] from the box; then, detach the drum stop tool [2] fitted to its back.



F-2-35

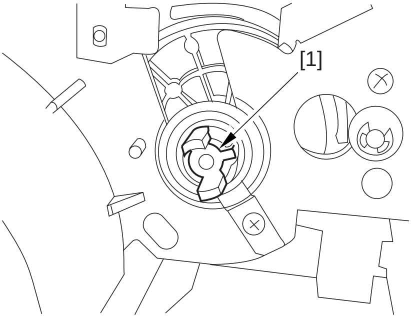
14) Hold the drum fixing member [1] in place using the drum stop tool [2]. Then, using a screwdriver, remove the drum fixing screw [3].

⚠ As shown in the figure, be sure to remove the screw on the protrusion [4] of the drum stop only after matching it against the notch [5] in the drum flange.



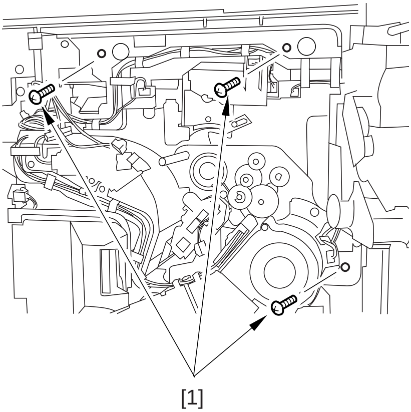
F-2-36

15) Remove the drum fixing member [1] using precision pliers.



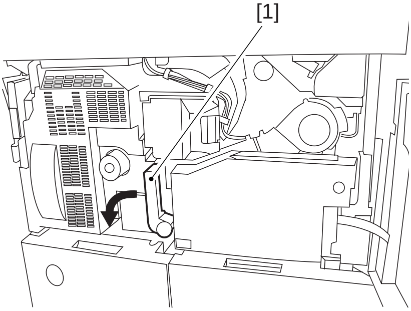
F-2-37

16) Remove the 3 binding screws (M4x8) [1].



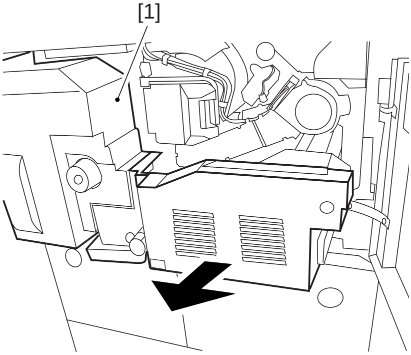
F-2-38

17) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



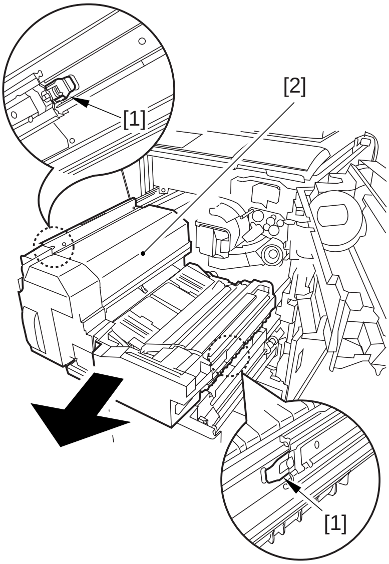
F-2-39

18) Slide out the fixing/feeding assembly [1] to the front.



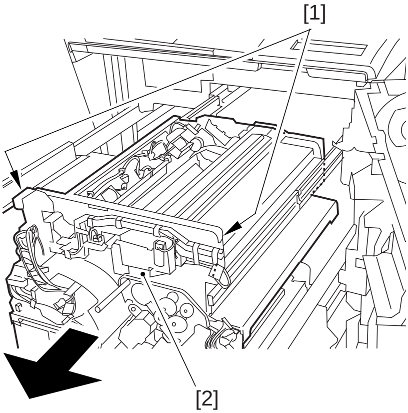
F-2-40

19) Push the 2 slide-out hook [1] found on both sides of the fixing/feeding assembly, and fully slide out the fixing/feeding assembly [2].



F-2-41

20) Lift both ends [1] of the process unit slightly; then, fully slide out the process unit [2] to the front.



F-2-42

⚠

1. Be sure to take care not to deform the joint plate found at the left end when drawing out the process unit.
2. When drawing out the process unit, be careful not to lift the process unit more than necessary. The unit may slip off the rails, not permitting detachment.
3. When you have slid out the process unit, try placing paper between the photosensitive drum and the developing rotary to protect the drum from scratches and light.

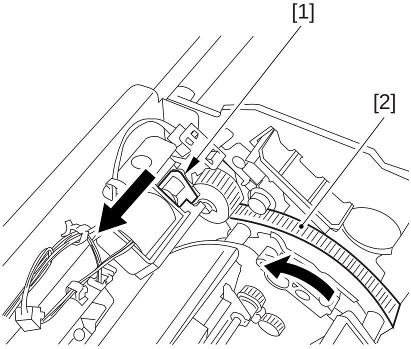
2.2.7 Mounting the Color Developing Assemblies

⚠If you must touch a color developing assembly, be sure that your hands are free of foreign matter (especially of metal) before dong so. (Adhesion of foreign matter on the cylinder is likely to cause image faults.)

1) Take out the color developing assembly (yellow, magenta, cyan) from its package box.

2) Push the lever [1] of the developing rotary solenoid once by hand; then, turn the developing rotary [2] counterclockwise by hand.

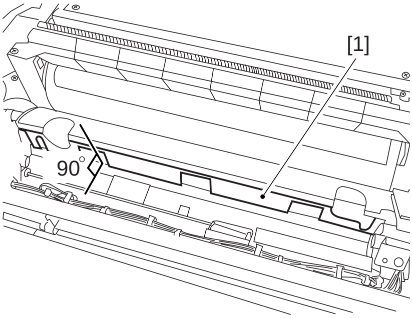
⚠ If you turn the developing rotary clockwise with a color developing assembly fitted in place, the anti-stray sheet attached to the sleeve of the color developing assembly can come off by friction against the photosensitive drum. Be sure to turn the developing rotary always in counterclockwise direction.



F-2-43

3) Turn the developing rotary so that its partition side [1] is vertical (i.e., position for mounting the developing assembly).

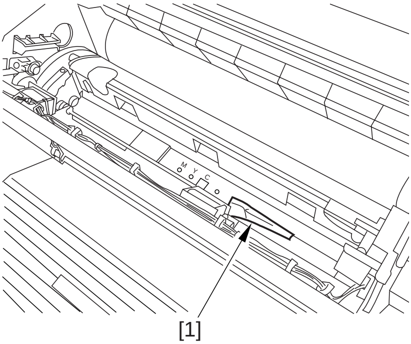
⚠ If you keep pushing the lever of the developing rotary solenoid, the developing rotary will not stop to permit mounting the developing assembly. When you have pushed the lever once, turn the developing rotary slightly and then let go of the lever.



F-2-44

4) Peel off the protective sheet [1] from the toner supply mouth of the developing

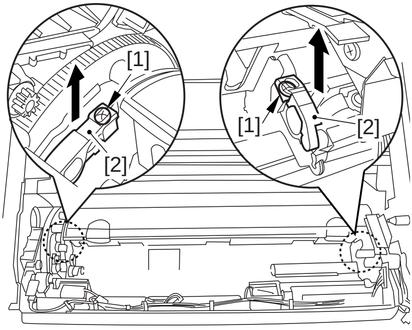
rotary.



F-2-45

5) Remove the 2 screws [1], and open the 2 developing assembly arms [2] in the direction of the arrow.

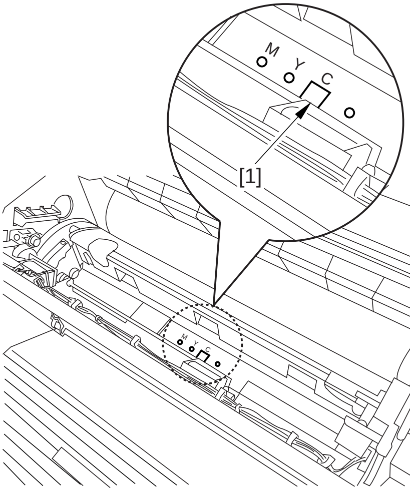
⚠ Be sure to fix the developing fixing arm in place with a screw before turning the developing rotary.



F-2-46

6) Have the appropriate color developing assembly on hand by checking the ID mark [1] attached to the developing rotary assembly.

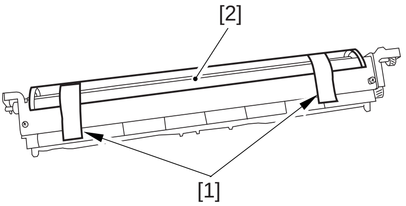
The following shows the ID mark attached to the cyan color developing assembly.



F-2-47

7) Place A3 paper on a smooth table, and place the appropriate color developing assembly.

8) With the developing cylinder of the color developing assembly facing upward, detach he tape [1]; then, pull out the protective sheet [2] while holding both its edges.



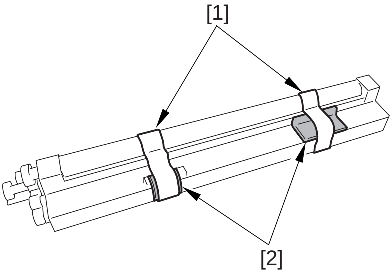
F-2-48

⚠

1. Do not touch the developing cylinder.
2. After finishing the foregoing step, be sure to change the orientation of the color developing assembly so that the sponge side faces upward.

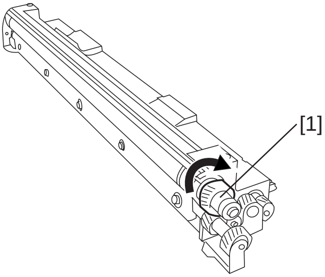
9) Remove the tape [1], and detach the sponge.

⚠ Toner and starter can start to leak when the sponge has been detached. Do not keep the supply mouth facing down during the work.



F-2-49

10) Check for scratches on the developing cylinder while turning the developing cylinder gear [1] 5 to 6 times in the direction of the arrow. The work also serves to even out the starter inside the unit.

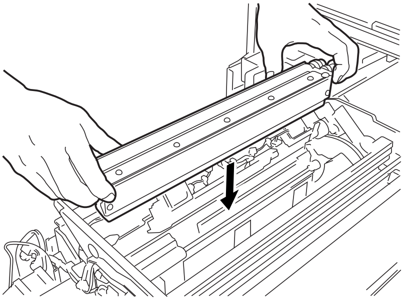


F-2-50

11) Make sure that the color developing assembly matches the ID mark; then, fit it in the developing rotary.

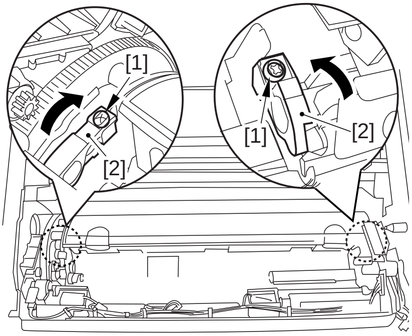
To do so, start with the front of the color developing assembly; while keeping its front fully against the front of the developing assembly, fit its rear in place.

⚠ Try holding the color developing assembly by both its ends to facilitate the work.



F-2-51

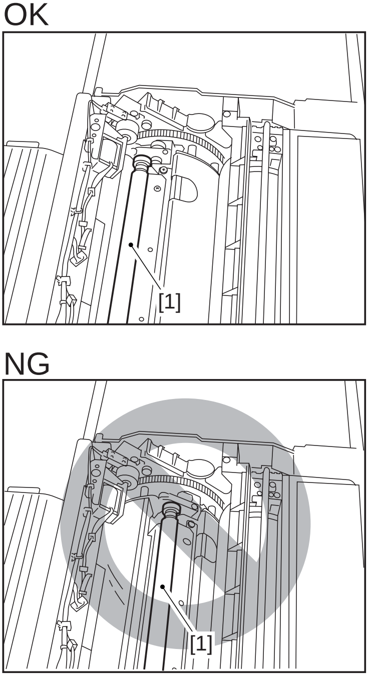
12) Close the 2 developing assembly fixing arms [1] in the direction of the arrows; then, fix them in place using 2 screws [2].



F-2-52

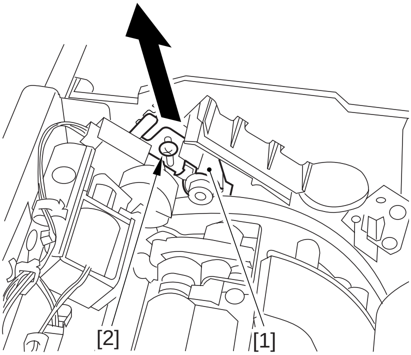
13) Repeat steps from 2) to 12) to fit all 3 color developing assemblies in the developing rotary.

14) If the developing cylinder [1] is found as in the figure marked NG, turn the developing rotary so that it is positioned as shown in the figure marked OK.



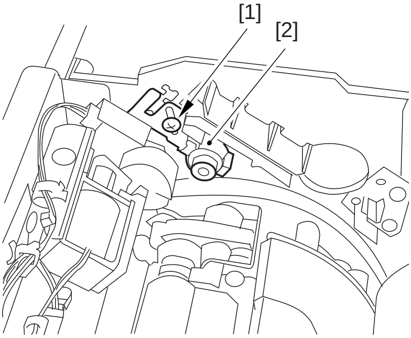
F-2-53

15) Loosen the screw [2] used to hold the torque limiter [1] of the developing rotary in place; then, slide it upward to release.



F-2-54

16) Fix the torque limiter in place using a screw [1].



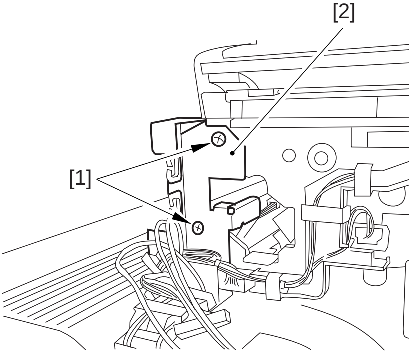
F-2-55

⚠ If you fail to release the torque limiter, you will not be able to mount the locking plate of the black developing assembly. Be sure not to leave out the work.

2.2.8 Mounting the Black Developing Assembly

⚠If you must touch a black developing assembly, be sure that your hands are free of foreign matter (especially of metal) before dong so. (Adhesion of foreign matter on the cylinder is likely to cause image faults.)

1) Remove the 2 screws [1], and detach the joint plate [2].



F-2-56

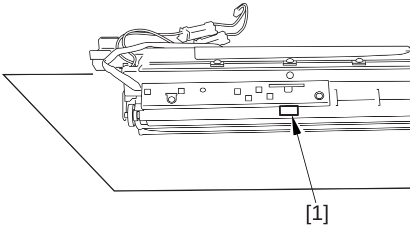
2) Hold the black developing assembly in lengthwise direction, and take it out of its package box.

⚠

- The machine's black developing assembly is equipped with a potential sensor. Do not touch the detection widow [1] of the sensor.
- Do not subject the black developing assembly to impact to prevent damage to

the potential sensor as by dropping it.

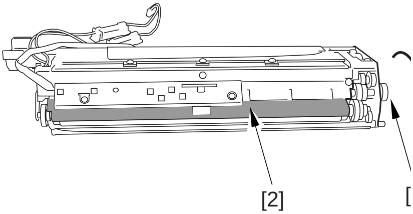
- Be sure to place paper before placing the black developing assembly on the floor or a table.



F-2-57

3) Turn the developing cylinder gear [1] by hand to check for scratches on the cylinder.

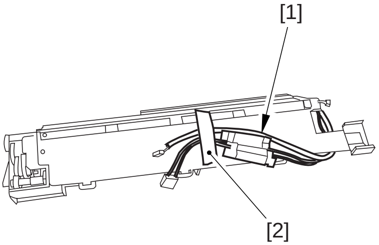
⚠ Do not touch the area [2] of the developing cylinder cover indicated in the diagram; otherwise, the blade can leave its trace on the cylinder.



F-2-58

4) Turn the developing cylinder gear by hand to look for scratches on the cylinder.

5) Peel off the tape [2] used to keep the high-voltage cable [1] in place.

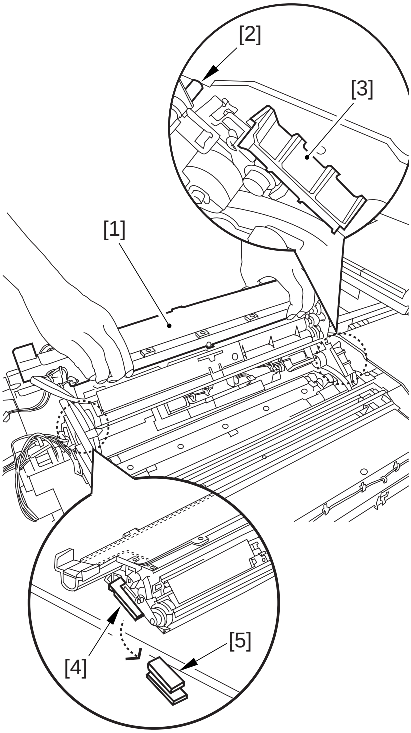


F-2-59

6) Hold the black developing assembly [1] by both its ends; while keeping it level, fit it in place while pushing it downward at an angle.

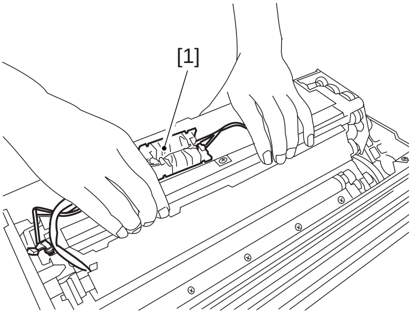
At this time, be sure that the boss [2] at the rear of the developing assembly matches the left guide [3] of the machine.

Be sure also that the rib [4] at the front of the developing assembly matches the right guide at the front of the machine.



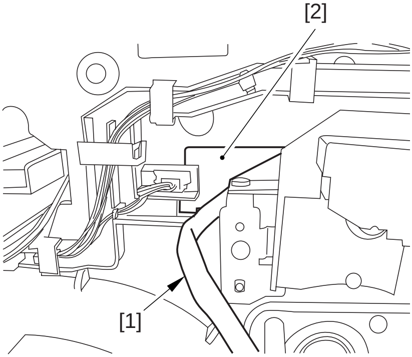
F-2-60

⚠ When fitting the black developing assembly in the machine, try keeping the high-voltage cable [1] on top of the assembly. Otherwise, the cable can get trapped when the assembly is put inside the machine.



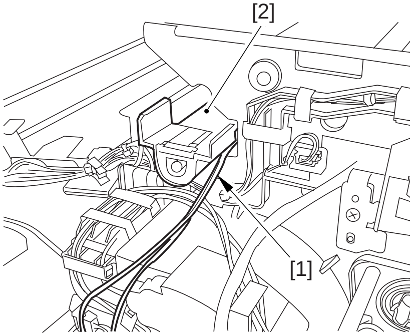
F-2-61

7) Route the cable [1] having the tube of the black developing assembly through the hole [2] indicated in the figure.



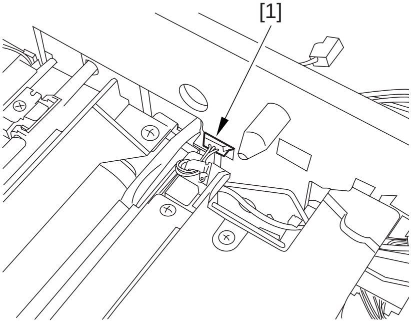
F-2-62

8) Route the high-voltage cable [1] of the black developing assembly along the side of the toner supply mouth [2].



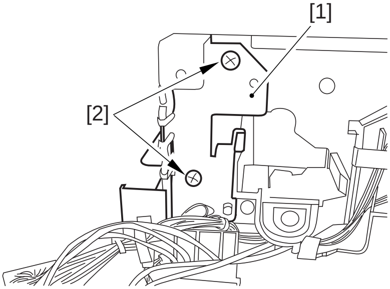
F-2-63

9) Connect the connector [1] found at the inside front.



F-2-64

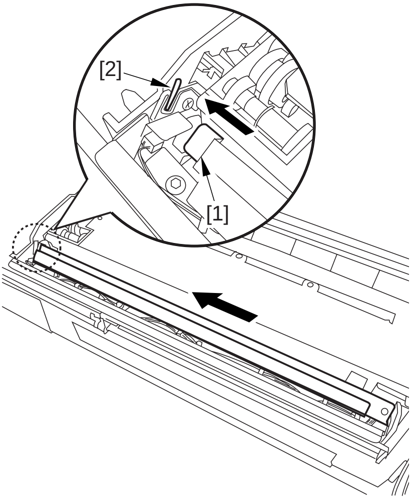
10) Fix the joint plate [1] in place using 2 binding screws [2].



F-2-65

11) Remove the paper put between the photosensitive drum and the developing rotary.

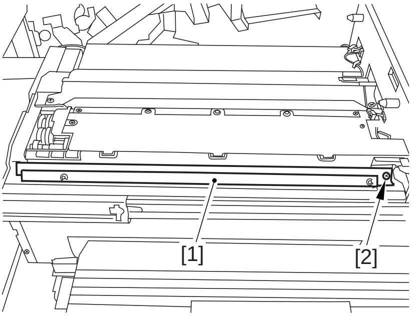
12) Fit the protrusion [1] of the included black assembly locking plate into the positioning hole [2] found at the rear of the machine.



F-2-66

13) Fix the black developing assembly

locking plate [1] in place using the included screw (binding; M4x8) [2].



F-2-67

14) Close the process unit.

⚠

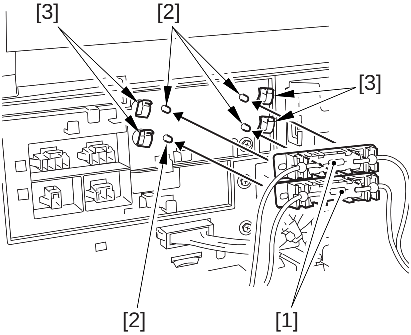
Take care not to trap the cable found at the right front of the machine by the process unit. Be sure to close the process unit while the front cover is fully open.

⚠

If you cannot fit the process unit al the way to the rear, go through the following:
Slide out the process unit, and turn the developing rotary drive gear found on the host side slightly; thereafter, be sure to close the process unit.

2.2.9 Mounting the Process Unit

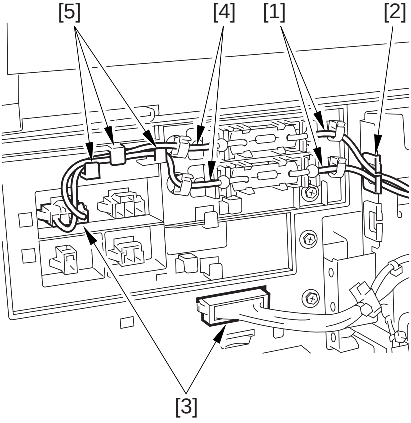
1) Match the area [1] where the resistance of the high-voltage cable is found in the upper left of the front against the 4 pins [2] of the host machine; then, fix it in place using the 4 clamps [3].



F-2-68

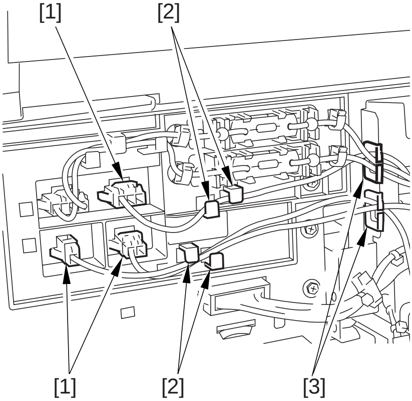
2) Fit the 2 cables [1] into the cable clamp [2].

3) Connect the 2 connectors [3], and fit the 2 cables [4] into the 3 cable guides [5].



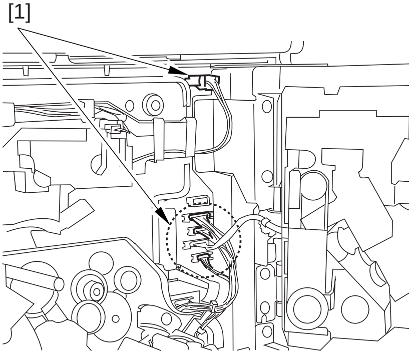
F-2-69

4) Connect the 3 connectors [1], and fit the cable into the 4 cable guides [2] and the 2 cable clamps [3].



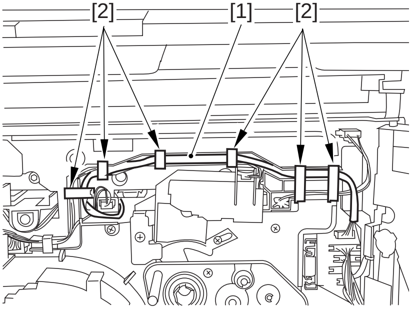
F-2-70

5) Connect the 4 connectors at the upper front right.



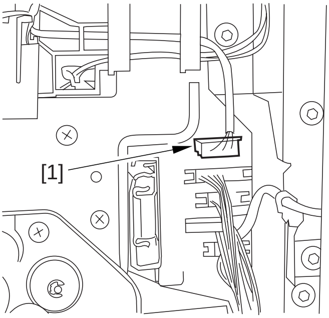
F-2-71

6) Fix the cable [1] of the black developing assembly in place using the harness guide [2].



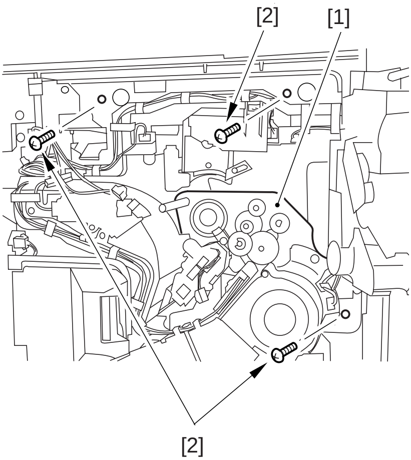
F-2-72

7) Connect the connector [1] coming from the black developing assembly.



F-2-73

8) Secure the process unit [1] in place using 3 binding screws (M4x8).

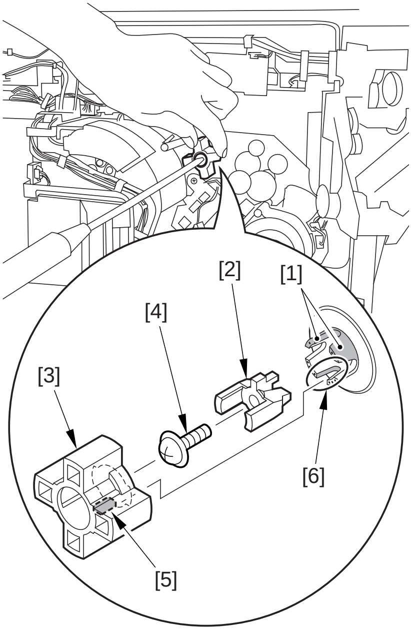


F-2-74

⚠ Be sure to use the binding screws. The use of RS tightening screws in the area of aluminum die-casting can damage the threads of the screws.

9) Fit the drum fixing member [2] to the drum flange [1]; then, hold it in place using the drum stop tool. Thereafter, tighten the drum fixing screw [4] using a screwdriver.

⚠ Be sure to fix the protrusion [5] of the drum stop tool in place with a screw while matching it against the notch [6] of the drum flange.

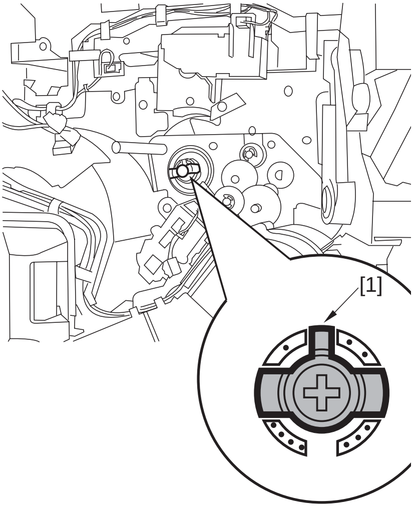


F-2-75

⚠

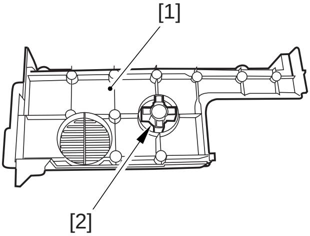
1. If the photosensitive drum is let to turn clockwise during the work, the scoop-up sheet can become soiled to cause stray toner. Be sure to hold the drum stop tool firmly in place when tightening the drum fixing screw.

2. Check to be sure that the protrusion of the drum fixing member is between he markings [1] "." and ".." of the drum flange.



F-2-76

3. Be sure to attach the drum stop tool [2] to the back of the process unit cover [1] for possible future relocation of the machine.

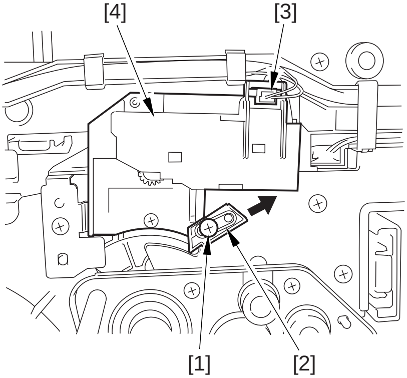


F-2-77

10) Close the fixing/feeding assembly.

11) Loose the screw [1], and move the charging assembly fixing [2] in the upper right direction; then, fix it in place using a screw.

12) Disconnect the connector [3], and detach the primary charging assembly [4]. Check the primary charging wire and the shielding plate for soiling. If it is soiled with dirt or paper lint, clean it using alcohol.

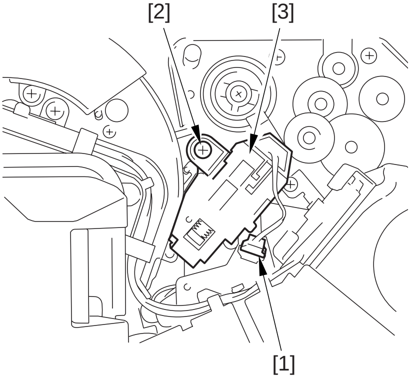


F-2-78

13) Disconnect the connector [1], and remove the screw [2].

14) Take out the pre-transfer charging assembly [3].

Check the pre-transfer charging wire and the shielding plate for soiling. If it is soiled with dirt or paper lint, clean it using alcohol.



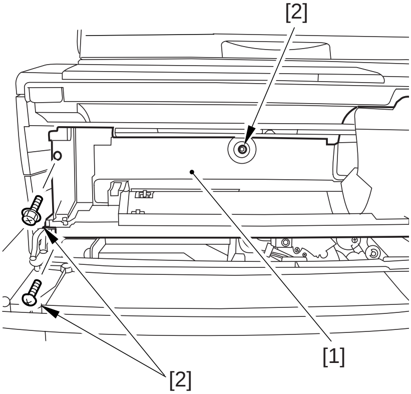
F-2-79

15) Mount the primary charging assembly and the pre-transfer charging assembly.

16) Close the hopper assembly.

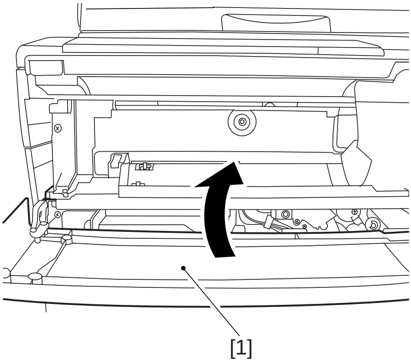
17) Open the black toner supply cover [1].

18) Secure the hopper assembly [1] in place using 3 screws [2].



F-2-80

19) Close the black toner supply cover [1].

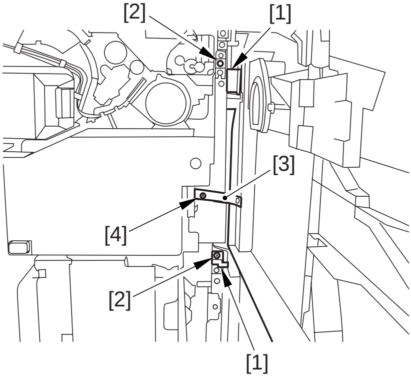


F-2-81

20) Slide out the right deck.

21) Fix the front cover hinge [1] in place using 2 binding screws [2].

22) Fix the front cover strap [3] in place using a screw [3].

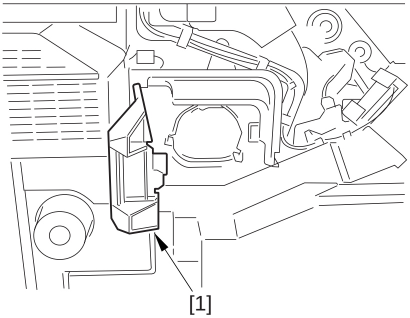


F-2-82

23) Close the right deck.

24) Slide out the fixing/feeding assembly.

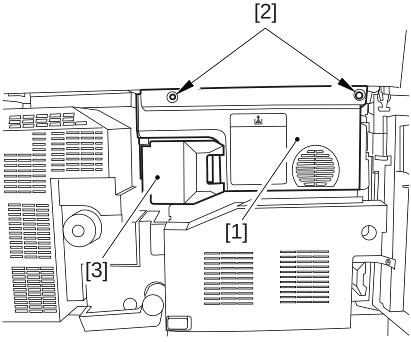
25) Open the color toner supply cover [1].



F-2-83

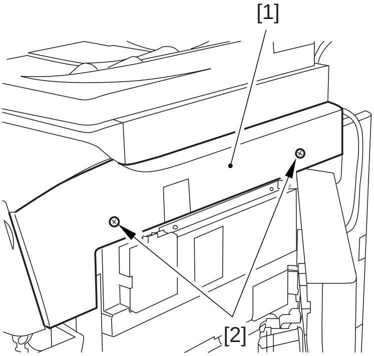
26) Fix the process unit cover [1] in place using the 2 RS tightening screws (M4x8) [2].

27) Close the color toner supply cover.



F-2-84

28) Fix the right cover (upper) [1] in place with 2 screws [2].



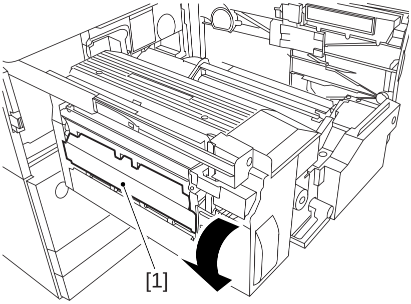
F-2-85

29) Close the right upper cover.

2.2.10 Mounting the Fixing Assembly

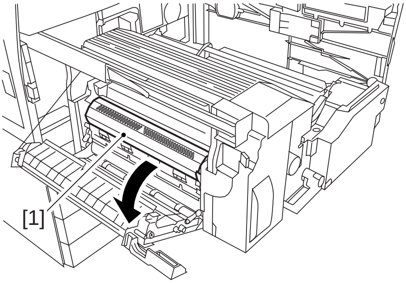
1) Slide out the fixing/feeding assembly fully.

2) Open the reversal delivery cover [1].



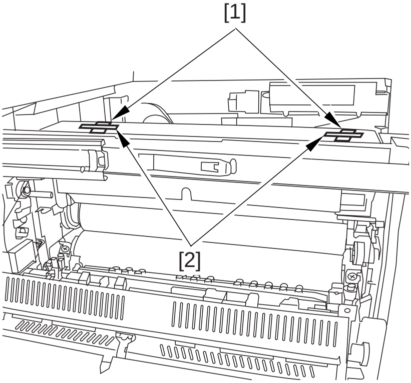
F-2-86

3) Open the middle cover [1].



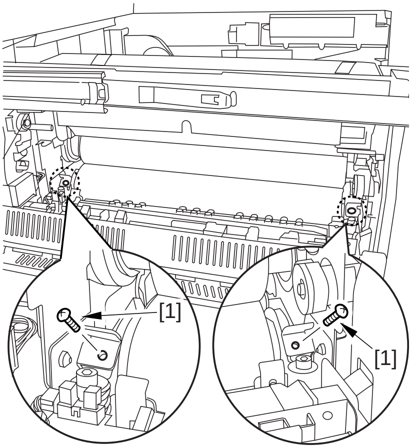
F-2-87

4) Peel off the tape [2] used to keep the tag [1] in place.



F-2-88

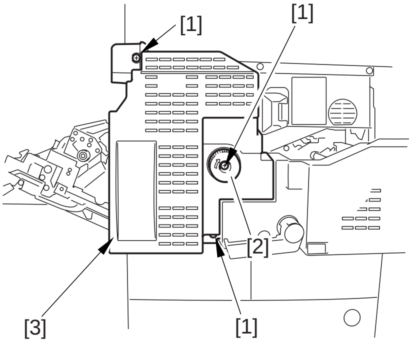
5) Remove the 2 fixing nip releasing screws [1].



F-2-89

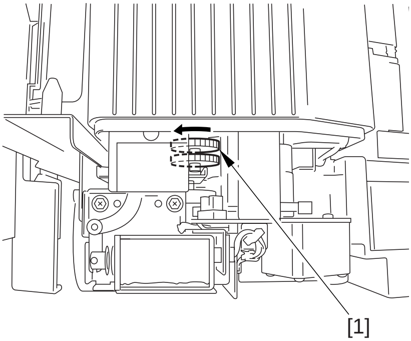
6) Check the fixing web for any slack; as necessary, perform steps 7) and 8).

7) Remove the 3 screws [1] and the fixing knob [2]; then, detach the fixing front cover [3].



F-2-90

8) Turn the gear [1] counterclockwise (viewing the machine from the front) to remove the slack.



F-2-91

9) Mount back the fixing front cover and the fixing knob by reversing the work in step 7).

10) Close the middle cover.

11) Close the reversal delivery cover.

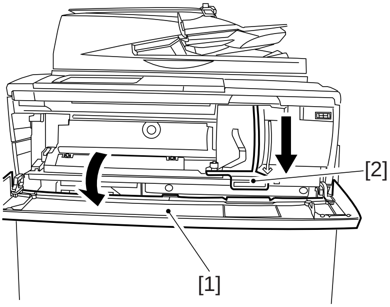
12) Close the fixing/feeding assembly.

13) Lock the releasing lever in place; then, close the front cover.

2.2.11 Fitting the Black Toner Bottle

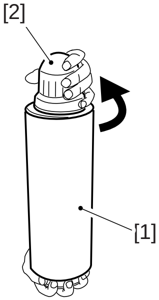
1) Take out the black toner bottle from its packaging box.

2) Open the black toner supply cover [1]; then, push down the lock lever [2].



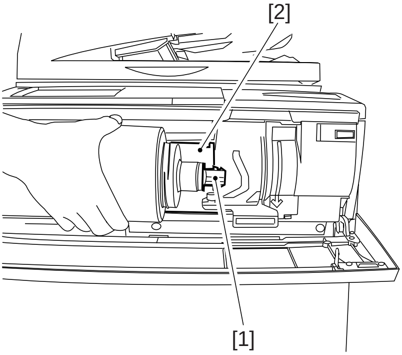
F-2-92

3) Hold the black toner bottle [1] as shown in the figure; then, turn the cap [2] in the direction of the arrow to detach from the bottle.



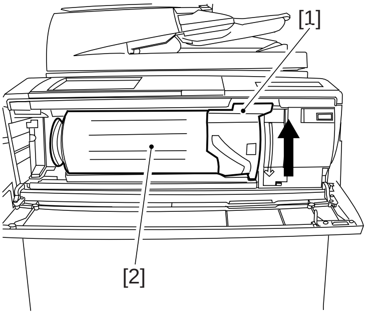
F-2-93

4) Hold the black toner bottle with its mouth [1] on the right side; then, fit it in the supply case [2] of the machine.



F-2-94

5) Shift the lock lever [1] upward to lock the black toner bottle [2] in place.



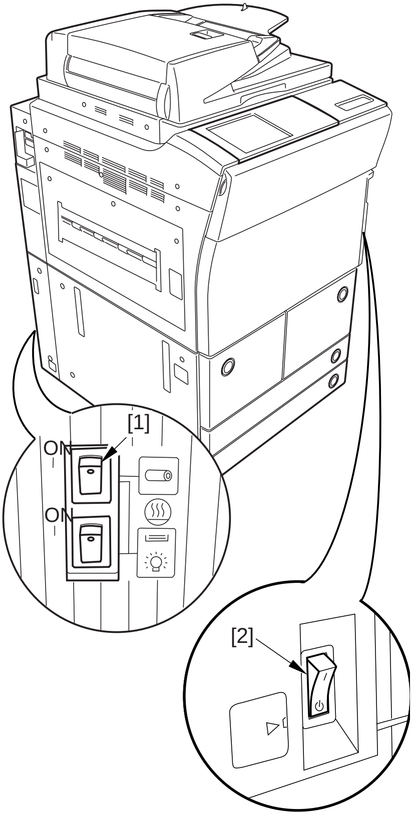
F-2-95

6) Close the black toner supply cover.

2.2.12 Checking the Environment Switch

1) Set the environment switch to suit the site of installation.

If the site is in a high humidity environment, turn on the environment switch [1] (so that the drum heater will go on regardless of the state of the main power switch [2]).



F-2-96

⚠ At time of shipment from the factory, the environment switch is off.

2.2.13 Turning On the Main Power Switch

⚠

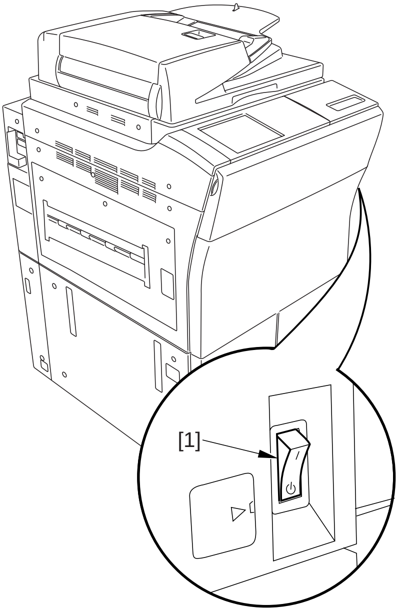
1. Be sure to remove all packing material from the cassette before turning on the main power.
2. In the case of the 230-V model, take out the power cord from the shipping box; then, connect its one end to the machine and the other end to the power outlet.
3. The rotary starts to rotate when the main power is tuned on. Do not use the door switch actuator.

1) In the case of the 100V model, connect the grounding wire to ground the machine.

2) Connect the machine's power plug to the power outlet, and turn on the main power [1].

3) Execute the following in service mode to disable initial rotation: COPIER>FUNCTION>INSTALL>AINR-OFF; then, set it to '1'.

⚠ Be sure to execute the foregoing service mode item after turning on the power to disable initial rotation. If the power is turned off and then on, the machine will start initial rotation, possibly causing an error in its image stabilization mechanism.



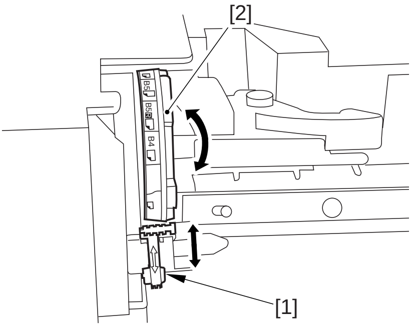
F-2-97

2.2.14 Setting Up the Paper Cassette

1) Press the cassette release button, and slide out the cassette to the front.

2) Check with the user to find out the type of paper to use; then, check to see if the size configuration switch [1] of the cassette is set to the desired paper type. If not, set the cassette to suit the type.

3) Turn the paper size dial [2] to suit the desired paper size.

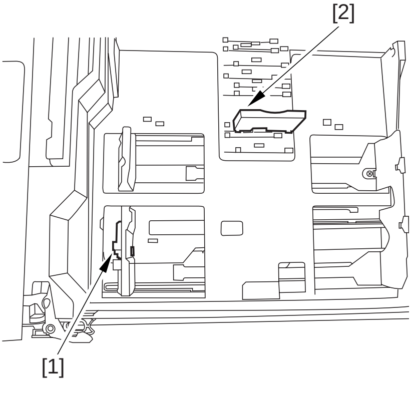


F-2-98

4) Pick the lever [1] of the side guide plate, and move the side guide plate to the desired size marking.

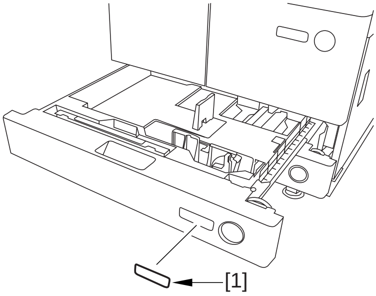
5) Remove the lever [2] of the rear end guide plate.

Fit the rear end guide plate to match the desired size marking on the bottom plate of the cassette.



F-2-99

6) Attach the correct size label [1] to the front of the cassette.

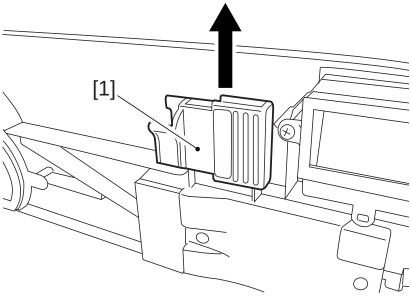


F-2-100

7) Deposit paper in the cassette; then, slide the cassette back into the machine.

8) As necessary, perform the same work for the other cassette.

9) Open the front cover; then, detach the color toner cartridge supply tab [1] from its back.

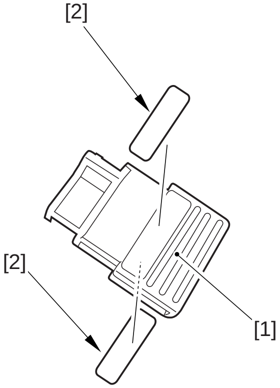


F-2-101

10) Peel the 2 color toner cartridge replacement supply tab labels from the 2 base sheets on which the cassette size label was found.

11) Attach the 2 color toner cartridge supply tab labels [2] to the color toner

cartridge replacement supply tab [1].

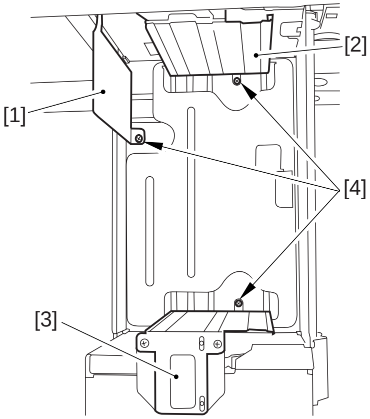


F-2-102

12) Fit the color toner cartridge replacement supply tab to the back of the front cover; then, close the front cover.

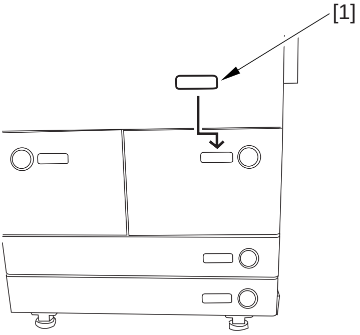
2.2.15 Changing the Deck Paper Size (right, left)

1) Open the front cover.
2) Push the release button, and slide out the right deck.
3) Remove the screws [4] (3 pc. in total), and detach the rear end guide plate [1], left guide plate [2], and right guide plate [3]. Then, fix them in place to suit the needs of the user.



F-2-103

at time of shipment : A4 size (100/ 230V),LTR size (120V)
4) Deposit paper in the right deck; then, slide it back into the machine.
5) Attach the size sticker [1] of the new paper size to the frond of the deck.



F-2-104

6) As necessary, perform the same work on the left deck.
7) After changing the size, execute the

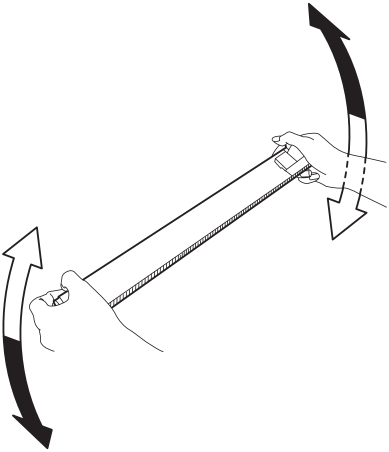
following in service mode to register the front deck paper size: for the right deck, COPIER>OPTION>CST>P-SZ-C1; for the left deck, COPIER>OPTION>CST>P-SZ-C2 (A4=0, B5=1, LTR=2).

8) Press the Reset key twice to end service mode.

2.2.16 Fitting the Color Toner Cartridge

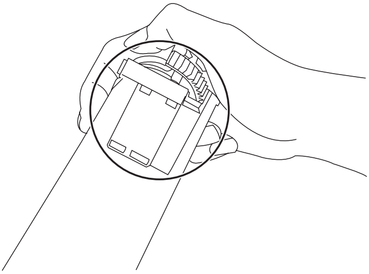
1) Take out the color toner cartridge (yellow, magenta, cyan) from its packaging box.

2) Hold the color toner cartridge (yellow, magenta, cyan) as shown with both hands, and turn it in the direction of the arrows 10 times to even out the toner inside it.



F-2-105

⚠ When turning the color toner cartridge, be sure not to touch the shutter assembly or turn the knob; otherwise, the toner can start to leak.

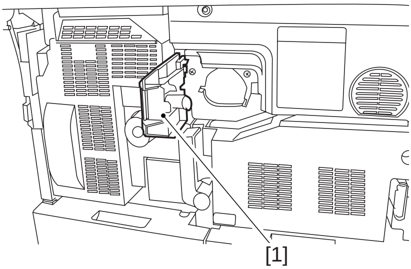


F-2-106

3) Check to see that the control panel indicates the message "Set the Toner Cartridge."

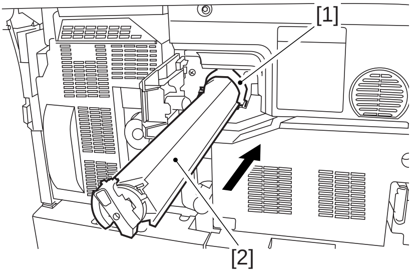
4) Open the front cover.

5) Open the color toner supply cover [1].



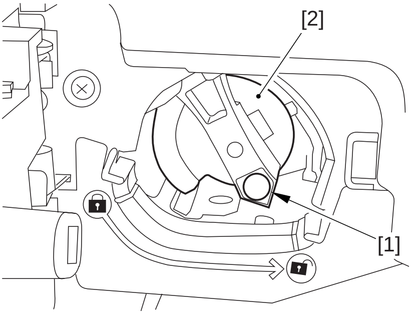
F-2-107

6) Fit the Y toner cartridge [2] through the color toner cartridge slot [1].



F-2-108

7) Turn the lock lever [1] clockwise to set the Y toner cartridge [2] in place.



F-2-109

8) Close the color toner supply cover.
9) Close the front cover.
10) See that the control panel indicates the message "Set the Toner Cartridge."
11) Repeat steps 4) through 9) to set the C toner cartridge.
12) See that the control panel indicates the message "Set the Toner Cartridge."
13) Repeat steps 4) through 9 to set the M toner cartridge.

2.2.17 Supplying Black Toner

1) Check to see that the warm-up period is over (i.e., Keep paper in the machine so that the control panel will indicate the message "Ready to Copy").
2) Execute the following service mode item to supply black toner: FUNCTION>INSTALL>TONER-S (about 7 minutes).

⚠ While this service mode item is under way, a countdown is made on the control panel; at the end, 'OK!' is indicated.

2.2.18 Cleaning the Intermediate Transfer Belt

1) Execute the following service mode item to clean the ITB: FUNCTION>CLEANING>TBLT-CLN (about 20 seconds).

⚠ The notation "OK!" appears on the screen to indicate the end of the service mode item.

2.2.19 Supplying Color Toner

1) Execute the following service mode item to set up color toner settings: FUNCTION>INSTALL>INSET-3 (about 14 minutes).

⚠

- Do not turn off the power switch while the machine is in operation.

- If the machine is turned off, the ITB may carry a deposit of toner, which can cause image faults. As necessary, execute COPIER>FUNCTION>CLEANING>TBLT-CLN and then INISET-3 to correct the problem.

⚠

While this service mode item is under way, a countdown is made on the control panel; at the end, "OK!" is indicated.

2) Execute the following service mode item to supply color toner: FUNCTION>INSTALL>SPLY-H-3 (about 45 seconds).

⚠

The notation "OK!" appears on the screen to indicate the end of the service mode item.

⚠

Do not turn off the power switch while the machine is in operation.

2.2.20 Setting Auto Gradation Correction

1) Clean the reading glass surface of the machine's copyboard.

2) Press the User Mode key.

3) Make the following selections: adjust/cleaning>auto gradation correction>full correction>test print 1.

In a while, the machine prints out Test Print 1.

4) Place the printout (Test Print 1) on the copyboard glass as indicated on the control panel.

5) Press [read start].

- The machine will read the printout of Test Print 1.

- When a message has appeared asking you to remove the printout, remove it from the copyboard glass.

6) Press [test print 2].

In a while, the machine prints out Test Print 2.

7) Place the printout of Test Print 2 on the copyboard glass as indicated on the control panel.

8) Press [read start].

- The machine will read Test print 2.

- When a message has appeared asking you to remove the printout, remove it from the copyboard glass.

9) Press [test print 3].

In a while, the machine prints out Test Print 3.

10) Place the printout of Test Print 3 on the copyboard as indicated on the control panel.

11) Press [read start].

- The machine will read Test Print 3.

- When a message has appeared asking you to remove the printout, remove it from the copyboard.

12) Press the Reset key to end User mode.

2.2.21 Checking the Image/Operation

1) Place the Test Chart on the copyboard glass, and make copies using the cassettes and the deck as the source of paper; then, check the output images.

- be sure there is no abnormal noise.
- be sure that images produced at different magnifications are all correct.
- be sure that as many copies as specified are made.
- be sure that the images are all correct regardless of the source of paper used.

The output must satisfy the following standards:

- horizontal registration (margin on image left edge): 2.5 +/-1.5 mm
- leading edge (margin on image leading edge): 4 +1.5, -1.0 mm

If the output is not as indicated, see the instructions on how to adjust the horizontal registration and leading edge registration.

2.2.22 Adjusting the Horizontal Registration

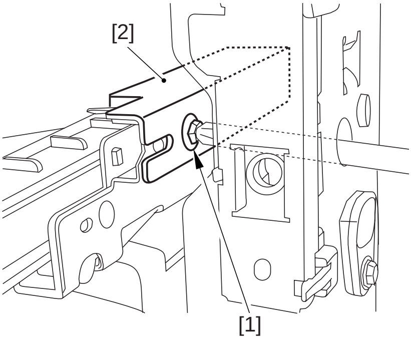
Adjust the horizontal registration as follows according to the source of paper:

- Cassette 3

1) Press the cassette release button, and slide out the cassette 3 to the front.

2) Open the upper right cover and the lower right cover.

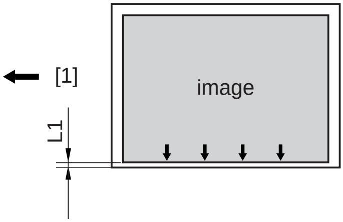
3) Insert a screwdriver through the hole in the front right stay; then, loosen the screw [1] to adjust the position of the adjusting plate [2].



F-2-110

- move the adjusting plate toward the rear to increase the left margin.
- move the adjusting screw toward the front to decrease the left margin.

4) Check to see that the horizontal registration (left/right margin; L1) of the copy on paper from cassette 3 is 2.5 +/-1.5 mm.



F-2-111

[1] Paper feed direction

5) Tighten the screw.

6) Close the upper right cover and the lower right cover.

7) Fit the cassette 3 back in.

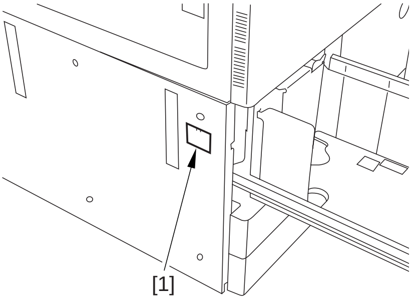
- Cassette 4

1) Perform the steps given for the cassette 3 to adjust the horizontal registration for the cassettes 4.

- Left Deck

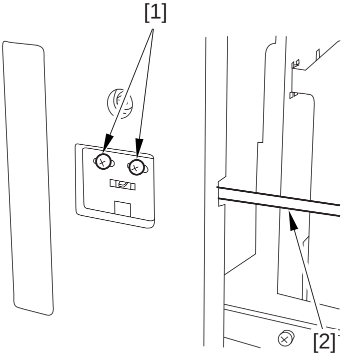
1) Press the release button, and slide out the left deck.

2) Remove the left face cover [1] using a flat-blade screwdriver.



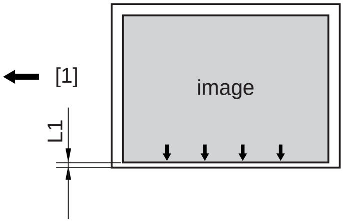
F-2-112

3) Loosen the 2 screws [1], and insert a screwdriver through the hole in the front left stay; then, turn the adjusting screw to adjust the horizontal registration.



F-2-113

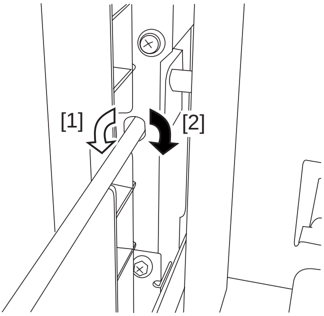
4) Make a copy using the left deck as the source of paper; then, check to see that the horizontal registration (left/right; L1) is 2.5 +/-1.5 mm.



F-2-114

[1] Paper feed direction

5) If the output is not as indicated, make the following adjustments:

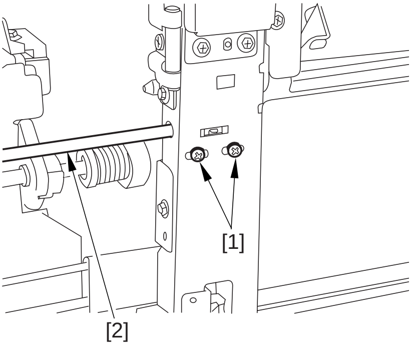


F-2-115

Turn the screwdriver counterclockwise so as to decrease the horizontal registration (left/right margin) [1].
Turn the screwdriver clockwise so as to increase the horizontal registration (left/right margin) [2].
A full turn of the screwdriver moves the horizontal registration (left/right margin) by 1.0 mm.

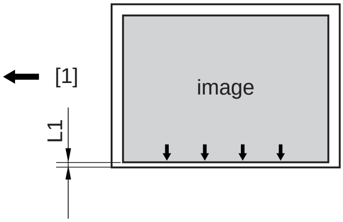
6) Tighten the 2 screws you loosened in step 3).
7) Attach the left face cover you removed in step 2) back on the machine.
8) Close the left deck.

- Right Deck
1) Press the release button, and slide out the right deck.
2) Open the upper right cover and the lower right cover.
3) Loosen the 2 screws [1], and insert a screwdriver [2] through the hole in the front right stay; then, turn the adjusting screw to adjust the horizontal registration.



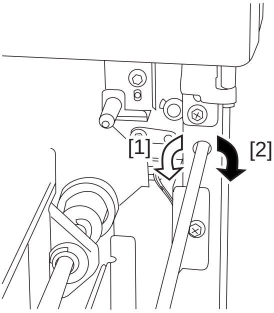
F-2-116

4) Check to make sure that the horizontal registration (left/right marking; L1) of the copy made on paper from the right deck is 2.5 +/-1.5 mm.



F-2-117

[1] Paper feed direction
5) If the output is not as indicated, make the following adjustments:

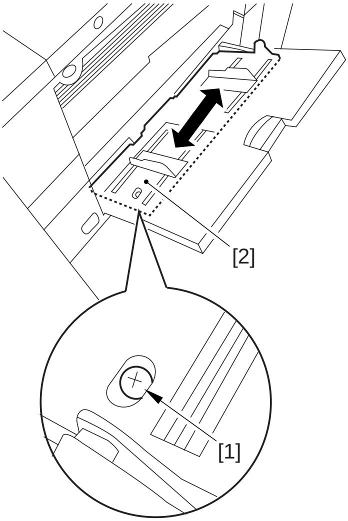


F-2-118

Turn the screwdriver counterclockwise so as to decrease the horizontal registration (left/right margin) [1].
Turn the screwdriver clockwise so as to increase the horizontal registration (left/right margin) [2].
A full turn of the screwdriver will move the horizontal registration (left/right margin) by 1.0 mm.

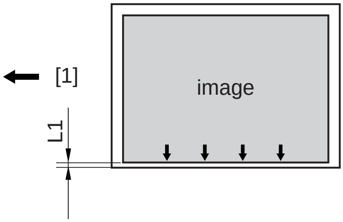
6) Tighten the 2 screws you loosened in step 3).
7) Close the right deck.

- Manual Feed Tray
1) Loosen the 2 screws [1], and move the slide guide [2] to adjust the horizontal registration.



F-2-119

2) Check to see that the horizontal registration (left/right margin; L1) of the copy made on paper from the manual feed tray is 2.5 +/-1.5 mm.



F-2-120

[1] Paper feed direction
3) Tighten the screws you loosened in step 1) to fix the slide guide in place.

2.2.23 Adjusting the Leading Edge Registration

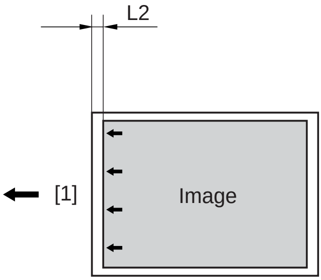
Adjust the leading edge registration as follows according to the source of paper:

Check to be sure that the leading edge registration (leading edge margin; L1) of the copy made on paper from the cassettes and the deck is 4.0 +1.5/-1.0 mm.

If not, go through the following:

- Make the following selections in service mode: COPIER>ADJUST>FEED-ADJ>REGIST.
- Then, change the setting to make adjustments.

(A change of '1' moves the leading edge registration by 0.1 mm. A higher setting will move the image toward the leading edge.)



F-2-121

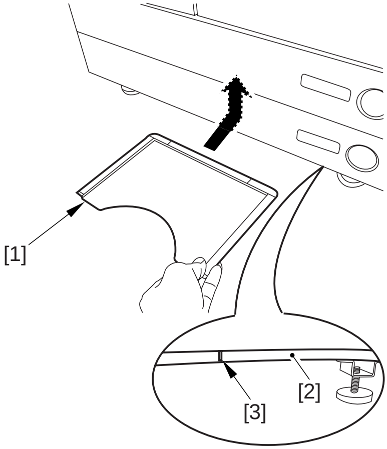
[1] Paper feed direction

2.2.24 Securing the Machine in Place

1) If the machine is already at its site of installation, secure it in place using the 2 adjusters.

2) Peel the double-sided tape from the back of the service book case [1]; then, attach the case by matching its right edge against the line marking [3] found on the right side of the bottom plate [2] of the machine.

⚠ Be sure to match the front edge of the service book case against the front edge of the base plate of the machine.



F-2-122

⚠ Areas to Avoid

- inside the machine (behind the front cover)
- louver
- grip slot

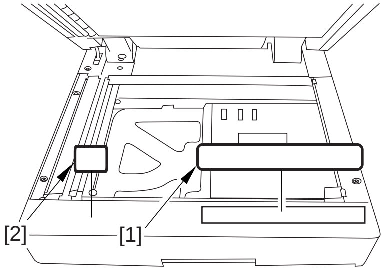
3) As appropriate, attach the 3 included

labels ([1], [2], [3]) to the locations indicated in the figure:

[1] Do Not Copy label (non-Japanese model)

[2] Cleaning Instructions label (non-Japans model)

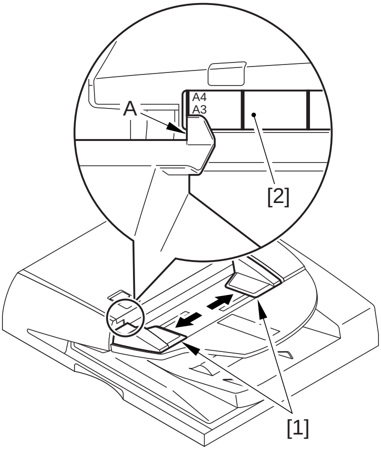
[3] ADF size label



F-2-123

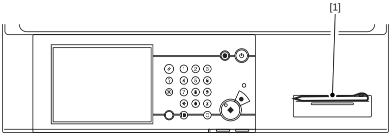
⚠ Attaching the ADF Size Label

Spread the ADF size guide plate [1] fully; then, match segment A of the plate and the A4/A3 marking of the label [2].



F-2-124

4) Fit the touch pen [1] in place on the control panel.



F-2-125

5) Clean up the area around the machine, and fill out the service book.

6) Make necessary settings in user mode (date, time) and service mode (COPIER>OPTION>USER).

⚠ When shipped from the factory, the 230-V model is set to English for its language of display. If needed, change the setting.

7) Execute the following service mode item, and store the output away in the service book case: COPIER>FUNCTION>MISC-P>P-PRINT.

⚠In the course of installing the machine, be sure to record the various adjustment values indicated by P-PRINT (printout) to the Service Label attached behind the front cover.

2.2.25 If Not Connected to a Network

Memo

If the machine is not connected to a network, its control panel will display the message "Check Connection to the Network." To disable the message, set the following service mode item to "0":

COPIER> OPTION> BODY> NWERR-SW (level 2)

2.3 Checking the Connection to the Network

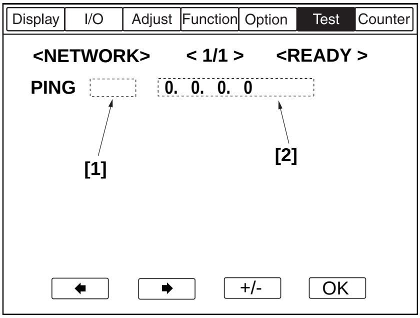
2.3.1 Overview

Go through the steps herein only if the machine is connected to a network.
If the user's network is based on TCP/IP, use the PING utility to make sure that the Ethernet PCB has properly been installed and the network settings have correctly been made. If the user's network is based on IPX/SPX or AppleTalk, you need not make this check.

If the machine is equipped with a network board and yet not connected to a network, it will indicate an network-related error message. To disable the indication of such a message, use the following service mode item (set it to "0"): COPIER>OPTION>BODY>NWERR-SCREW.

2.3.2 Using the PING Utility

1) Make the following selections in service mode: COPIER>TEST>NETWORK>PING.
2) Enter the IP address of the machine using the keypad on the control panel; then, press [OK].
3) Press the Start key.
- The machine will indicate 'OK' if the result of the check is good and 'NG' if not good.



<NETWORK> < 1/1 > <READY >

PING 0. 0. 0. 0

F-2-126

[1] Result (OK/NG)
[2] IP address field

2.3.3 Using a Remote Host Address

You can also use a remote host address and run the PING utility to find out if the connection to the network is correct or not.

The term 'remote host address' refers to the IP address of a PC terminal connected to and operating on the TCP/IP network to which the machine is connected.

1) Inform the system administrator that you will be checking the network connection using the PING utility.

2) Ask the system administrator for the remote home address you can use.

3) Enter the remote home address to the appropriate PING field.

4) See if 'OK' has appeared to indicate that the connection to the network is correct.

5) If the machine indicates 'NG, ' the connection is not correct; go through the following:

2.4 Troubleshooting the Network

2.4.1 Overview

Go through the steps herein only if the machine is connected to a network.
If the machine's connection to the network fails, suspect the following causes:
a. The connection between the network and the Ethernet PCB is faulty.
b. The machine's TCP/IP settings are incorrect.
c. The Ethernet PCB is faulty, or is not mounted correctly.
d. The network is faulty.
To identify the cause, go through the following:

2.4.2 Checking the Connection of the Network Cable

1) Check to see if the network cable is correctly connected to the Ethernet PCB.
- If yes, go to the next check.
- If no, correct it, and run a check using the remote host address once again.

2.4.3 Using a Loopback Address

A loopback address comes back before it reaches the network PCB; as such, you can find out whether the machine's TCP/IP settings are correct by executing PING using a loopback address.

1) Enter a loopback address (127.0.0.1) in the appropriate PING field.
- If the result of the check is not good, check the machine's TCP/IP settings once gain, and execute PING once again.
- If the result of the check is good, go to the following check.

2.4.4 Using a Local Host Address

A local host address is the machine's IP address, and it comes back after reaching the network PCB when you execute PING, enabling you to find out whether the network PCB is normal.

1) Enter the machine's IP address in the appropriate PING field.
If 'NG' is indicated, go through the following check/remedy, and execute PING once gain:
a. The machine's IP address is not correct: check with the system administrator to find out

if the machine's IP address is correct and valid.

b. The connection of the network PCB is faulty: check the connectors used to connect the network PCB.

c. The network PCB is faulty: replace the network PCB.

If 'OK' is indicated, suspect a fault in the user's network environment; contact the system administrator for appropriate correction.

2.5 Relocating the Machine

2.5.1 Relocating the Machine

If you need to relocate the machine after installation, be sure to go through the following:

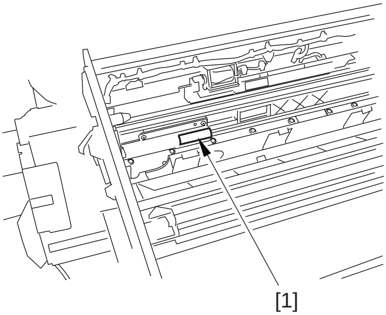
1) Remove all paper from the left/right deck and the cassettes.

2) Turn off the main power switch, and disconnect the power plug. If the grounding wire is connected, remove it.

3) Fix the scanner in place using the scanner fixing screw stored away from the time of installation.

4) Take out the black toner bottle, all color developing assemblies, and all color toner cartridges, and put them in separate boxes.

5) Tape the toner supply mouths of the developing rotary in place as soon as developing assemblies have been removed. Also, be sure to fix the developing assembly fixing arm in place using a screw.



F-2-127

6) Tape the fixing/feeding assembly releasing lever in place to protect against vibration.

7) Secure the covers, decks, and cassettes in plase using tape.

8) Place A3 copy paper on the copyboard glass, and tape the ADF in place.

⚠

1. If you must use a flight of stairs, keep the following in mind:
2. The machine weighs about 230 kg; be sure to work in a group of 4 persons.
3. Check to be sure that the 2 adjusters on the bottom plate of the machine are released; moreover, be sure not to lose them, as they tend to slip out because of the movement of the

machine during relocation.

4. If a side paper deck or a finisher (accessory) is installed, be sure to detach it before starting to move the machine.

2.6 Installing the Card Reader-C1

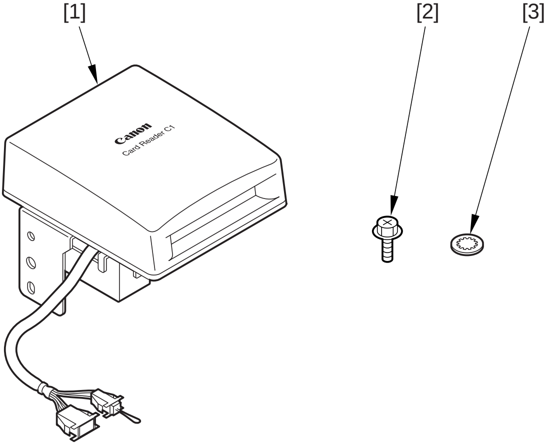
2.6.1 Points to Note About Installation

⚠ You need a Card Reader Mounting Kit-C1 for the installation.

2.6.2 Checking the Contents

<Card Reader-C1>

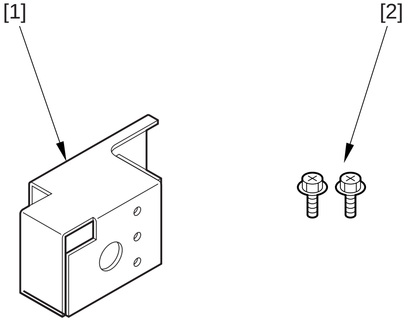
[1] Card Reader-C1 ....1 pc.
[2] RS tightening screw (M4x10) ..1 pc.
[3] Toothed washer ....1 pc.



F-2-128

<Card Reader Mounting Kit-C1>

[1] Card reader base ....1 pc.
[2] RS tightening screw (M4x10) ..2 pc.



F-2-129

2.6.3 Installation

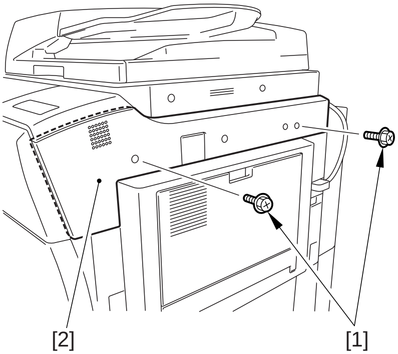
1) Make the following selections in the host machine's service mode: COPIER>FUNCTION>INSTALL>CARD; then, enter a number (1 to 2001).

- Use the lowest number of the cards that will be used by the usered.

- As many as 300 cards, starting with the number you enter, will be registered.

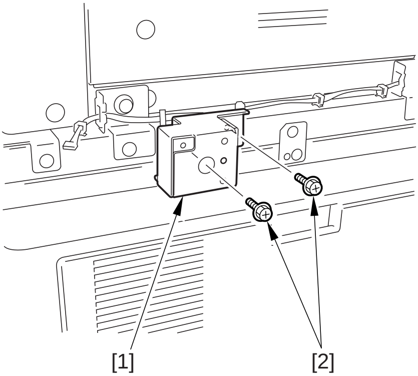
2) Turn off the host machine's main power switch.

3) Remove the 2 screws [1], and detach the right cover (upper) [2].



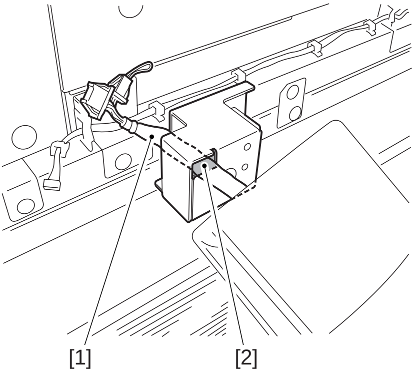
F-2-130

4) Mount the card reader base [1] using the 2 included screws [2].



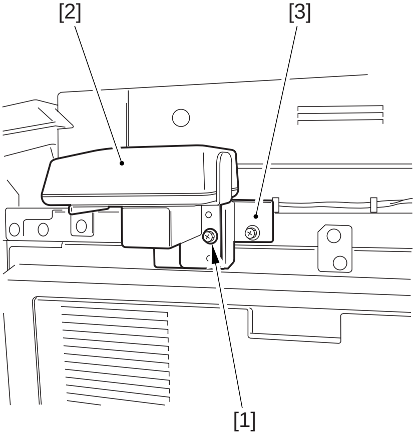
F-2-131

5) Route the harness [1] of the card reader through the hole [2] in the card reader base.



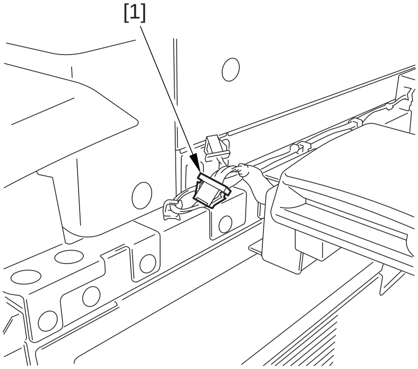
F-2-132

6) Mount the card reader [2] to the card reader base [3] using the included screw and toothed washer [1].



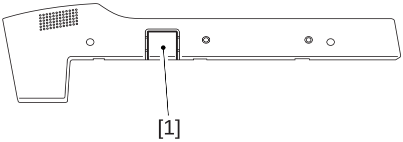
F-2-133

7) Route the card reader harness through the wire saddle, and connect the connector [1].



F-2-134

8) Cut the section [1] of the right cover (upper) indicated in the figure using nippers.



F-2-135

9) Mount the right cover (upper) you removed in step 3).

10) Turn on the main power switch, and check that a message has appeared asking for a control card.

11) Insert a control card, and check to see that the machine is ready to make copies.

2.6.4 Using the Card Reader in Combination with NetSpot Accountant (hereafter, NSA)

1) Make the following selections in Additional Function: system control settings>group ID control>count control; then, check to see IDs 00000001 thorough 00001000 have been created (i.e., if you entered '1' as the first number in service mode): COPIER>FUNCTION>INSTALL>CARD).

2) Make the following selections in Additional Function: system control settings>network settings>TCP/IP settings>IP address; then set up the following: IP address, gateway address, subnet mask.

⚠Take care. If you fail to register [system control group] and [system control ID No.], you will not be able to perform 'register card to device' as part of NSA setup work.

---

3) Under [system administrator info] of Additional Function, enter any number for [system control group] and [system control ID No.].

4) Turn off the control panel switch.

5) Turn off and then on the main power switch.

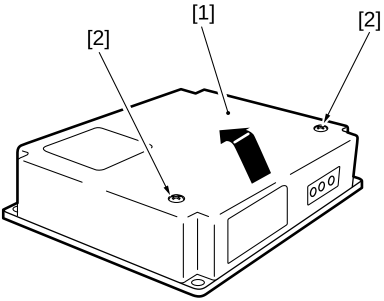
2.7 Installing the NE Controller-A1

2.7.1 NE Controller-A1 Installation Procedure

Keep the following in mind when installing the NE Controller-A1 to its host machine:

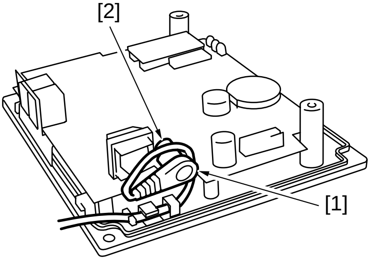
1. The work must be performed in strict compliance with the laws and regulations of the local authorities.
2. The host machine must have properly been installed.
3. The host machine's power plug must be disconnected.
4. The screws must be identified by type (length, diameter) and location.
5. The setup data for the controller must be saved to a PC at the service station.

1) Remove the 2 screws [2] of the top cover [1] of the controller, and detach the cover.



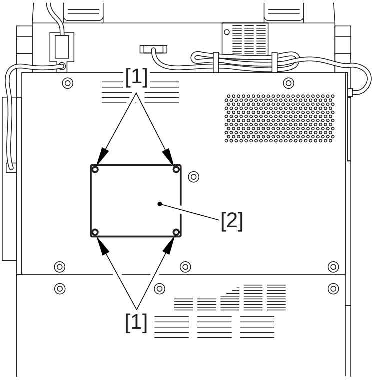
F-2-136

2) Connect the connector [1] of the power supply unit to the connector [2] of the controller.



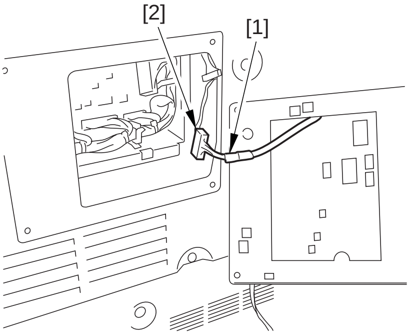
F-2-137

3) Remove the 4 screws [1], and detach the face plate [2] of the host machine's rear cover (upper).



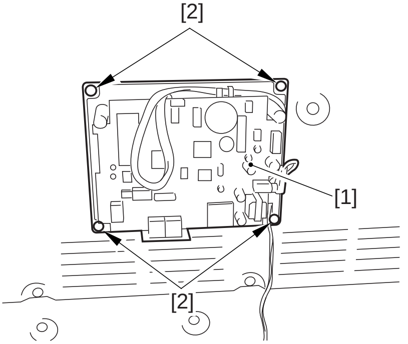
F-2-138

4) Connect the cable [1] of the controller to the host machine's connector [2].



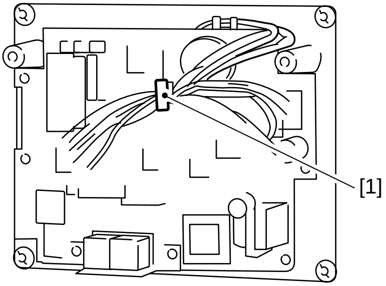
F-2-139

5) Mount the controller [1] to the host machine's rear cover (upper) using 4 screws [2]. (Use the screws that come with the controller.)



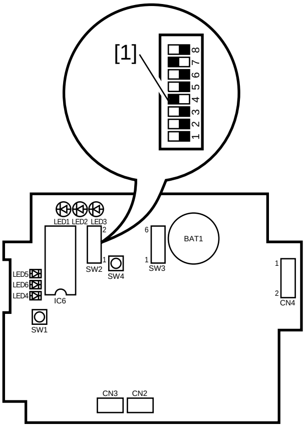
F-2-140

6) Take up the slack from the cable used between the controller and its host machine; bundle the extra length of the cable, and fix the bundle in place on the host machine using a harness band [1].



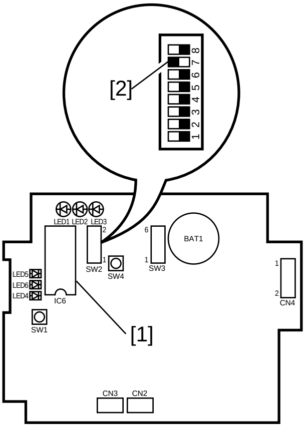
F-2-141

7) Shift bit 4 of the DIP switch (SW2-4) found on the PCB to the ON side (so that the communication between the controller and the host machine will be in IPC mode).


[1]
8
7
6
5
4
3
2
1
LED1
LED2
LED3
2
1
SW2
SW4
6
1
SW3
BAT1
1
2
CN4
LED5
LED6
LED4
IC6
SW1
CN3
CN2

F-2-142

8) If IC6 [1] is found on the PCB, shift bit 7 of the DIP switch (SW2-7) [2] to the ON side; otherwise, shift the bit to the OFF side.

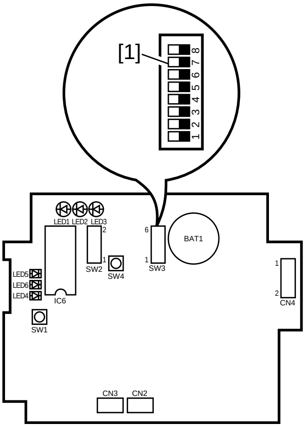

[2]
8
7
6
5
4
3
2
1
LED1 LED2 LED3
2
1
SW2
SW4
6
1
SW3
BAT1
1
2
CN4
LED5
LED6
LED4
IC6
SW1
[1]
CN3
CN2

F-2-143

If IC6 [1] is not found, you need not mount one.
If you are mounting or replacing a ROM (IC6) [1] to upgrade the controller, be sure to shift bit 7 of the DIP switch (SW2-7) [2] to the ON side.

---

9) Set the bits of the DIP switch (SW3) [1] on the PCB as indicated.


[1]
8
7
6
5
4
3
2
1
LED1
LED2
LED3
2
1
SW2
SW4
6
1
SW3
BAT1
1
2
CN4
LED5
LED6
LED4
IC6
SW1
CN3
CN2

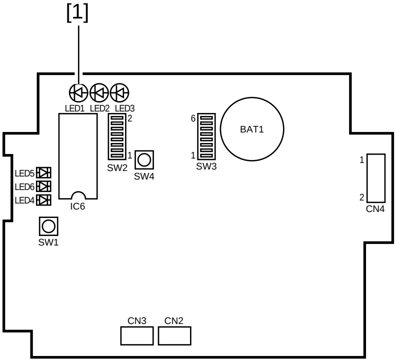
F-2-144

T-2-1

Notation	Setting	SW3-1	SW3-2	Description
		OFF	OFF	set the modem signal transmission level to -16 dBm.
		ON	OFF	set the modem signal transmission level to -14 dBm.
SW3-1	see right	OFF	ON	set the modem signal transmission level to -12 dBm.
SW3-2		ON	ON	set the modem signal transmission level to -10 dBm.
SW3-3	OFF			keep it to OFF at all tiems.
SW3-4	ON			use it to set the line setting to touch tone.
	OFF			use it to set the line setting to dial pulse.
SW3-5	ON			use it to set the dial pulse speed to 20 PPS.
	OFF			use it to set the dial pulse speed to 10 PPS.

Notation	Setting	SW3-1	SW3-2	Description
SW3-6	-	not used		

10) Connect the power plug to the power supply unit; then, check to see that LED1 [1] (green) on the PCB goes on.


[1]
LED1
LED2
LED3
2
1
SW2
SW4
6
1
SW3
BAT1
LED5
LED6
LED4
IC6
SW1
1
2
CN4
CN3
CN2

F-2-145

11) Initialize the RAM of the controller as follows:

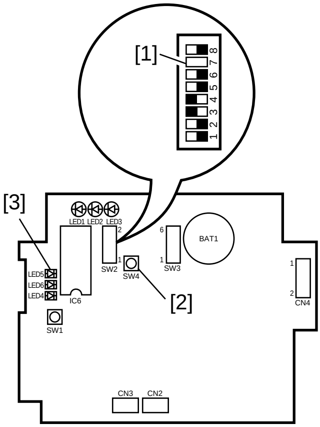
Set the bits of the DIP switch (SW2) [1] on the PCB as shown in the table; then, press the push switch (SW4) [2].

A press on the push switch (SW4) [2] causes LED 3 [3] (red) to go on.

T-2-2

SW2 bits	Setting
SW2-1	OFF
SW2-2	OFF
SW2-3	ON
SW2-4	ON
SW2-5	OFF
SW2-6	OFF

SW2 bits	Setting
SW2-7	See step 8).
SW2-8	OFF


[1]
8
7
6
5
4
3
2
1
[3]
LED1
LED2
LED3
LED5
LED6
LED4
IC6
SW1
SW2
SW4
SW3
BAT1
CN4
CN3
CN2
[2]

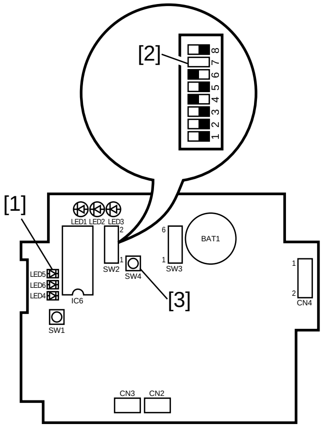
F-2-146

12) When LED5 [1] (red) has gone on, set the bits of the DIP switch (SW2) [2] on the PCB as indicated in the following table; then, press the push switch (SW4) [3]. A press on the push switch (SW4) [3] will cause LED5 [1] (red) to go off, indicating that the RAM has been initialized.

T-2-3

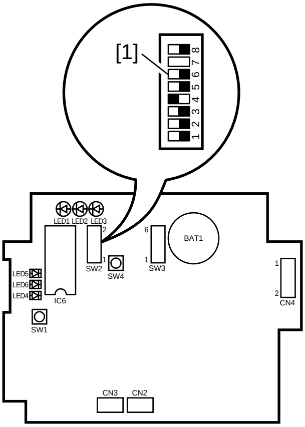
SW2 bits	Settings
SW2-1	OFF
SW2-2	OFF
SW2-3	OFF
SW2-4	ON
SW2-5	OFF

SW2 bits	Settings
SW2-6	ON
SW2-7	See step 8).
SW-8	OFF


[1]
[2]
[3]
1
2
3
4
5
6
7
8
LED1
LED2
LED3
LED5
LED6
LED4
IC6
SW1
SW2
SW3
SW4
BAT1
CN4
CN3
CN2

F-2-147

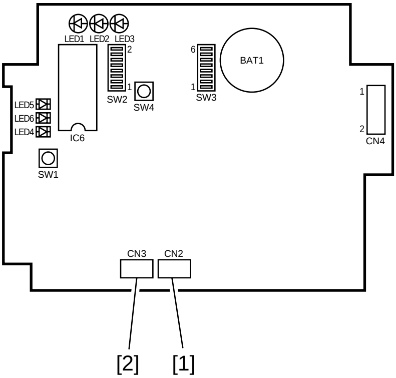
13) Shift bit 6 of the DIP switch (SW2-6) [1] on the PCB to the OFF position.


[1]
1
2
3
4
5
6
7
8
LED1
LED2
LED3
LED5
LED6
LED4
IC6
SW1
SW2
SW3
SW4
BAT1
CN4
CN3
CN2

F-2-148

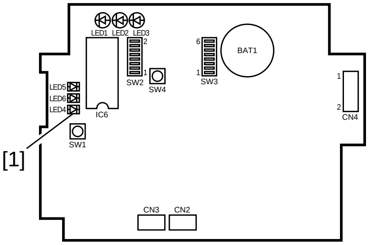
14) Connect the telephone line to the controller.

If the controller is to be used on its own, connect the modular jack cable to the connector (LINE) [1] of the control. If the extension function of the controller is to be used, connect the existing telephone or fax to the connector (TEL) [2] of the controller while connecting the telephone line to the connector (LINE) [1] of the controller.


LED1
LED2
LED3
2
6
BAT1
1
1
SW2
SW4
SW3
1
LED5
LED6
LED4
IC6
2
CN4
SW1
CN3
CN2
[2]
[1]

F-2-149

15) Call the service station, and ask for initial setup work for the controller. (When a call arrives, LED4 (red) [1] starts to flash.)


LED1
LED2
LED3
2
6
BAT1
1
1
SW2
SW4
SW3
1
LED5
LED6
LED4
IC6
2
CN4
SW1
[1]
CN3
CN2

F-2-150

16) Call the service station, and check if the initial setup for the controller has ended. If the work has failed, go through steps 10) through 12) to initialize the RAM, and start the setup work once again.

⚠ Be sure to contact the service station to find out if the settings are correct.

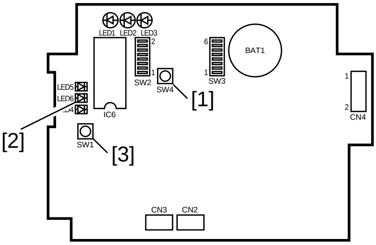
17) Call the PC at the service station using the controller.

Press the push switch (SW4) [1] on the PCB.

A press on the push switch (SW4) [1] will cause LED6 (red) [2] to go on; at the end of the transmission, LED6 (red) [2] goes off. (It will flash if the transmission fails.)

A press on the push switch (SW4) [1] while LED6 [2] is flashing will initiate transmission once again.

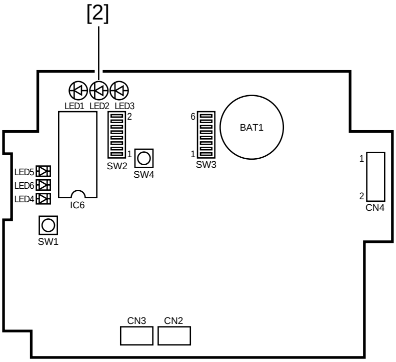
A press on the push switch (SW1) [3] while LED6 [2] is flashing will cancel the transmission.



F-2-151

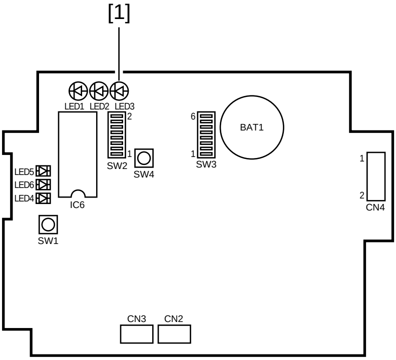
18) Check to see that the communication between the controller and its host machine is normal.

Connect the host machine's power plug, and turn on the power switch; then, check to see that LED2 (orange) [2] flashes.


[2]
LED1
LED2
LED3
SW2
SW4
SW3
BAT1
LED5
LED6
LED4
IC6
SW1
CN4
CN3
CN2
1
2
6

F-2-152

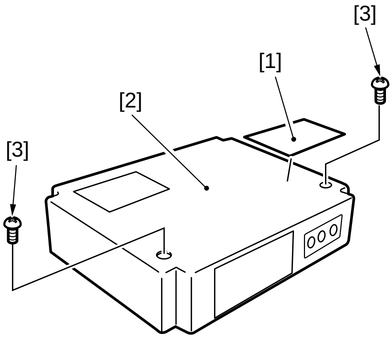
19) Press the Start key on the host machine; then, check that LED3 (pink) flashes each time delivery is made.


[1]
LED1
LED2
LED3
SW2
SW4
SW3
BAT1
LED5
LED6
LED4
IC6
SW1
CN4
CN3
CN2
1
2
6

F-2-153

20) Attach the switch settings label [1] to the top cover of the controller, and record the new switch settings.

21) Fix the top cover [2] of the controller in place using 2 screws [3]. When doing so, check to be sure that the cable of the power supply unit is fixed in place to the cable guide inside the controller and is not trapped by the top cover [2].



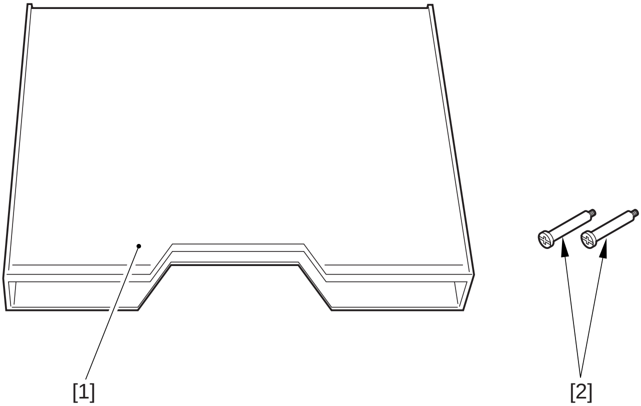
F-2-154

2.8 Installing the Original Tray

2.8.1 Checking the Contents

[1] Original holder ......1 pc.

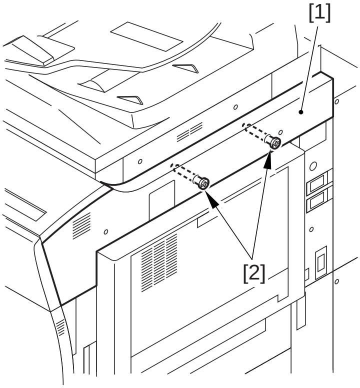
[2] Stepped screw (M4) ...2 pc.



F-2-155

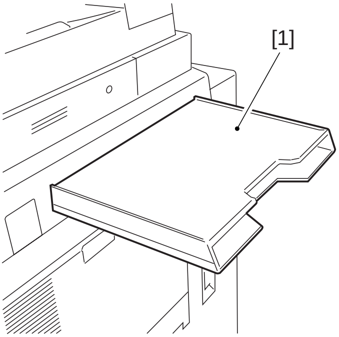
2.8.2 Installation

1) Fit the 2 stepped screws [2] in the right cover (upper) [1].



F-2-156

2) Hook the original holder [1] on the stepped screws you fitted in step 1).



F-2-157

2.9 Installing the Key Switch Unit-A2

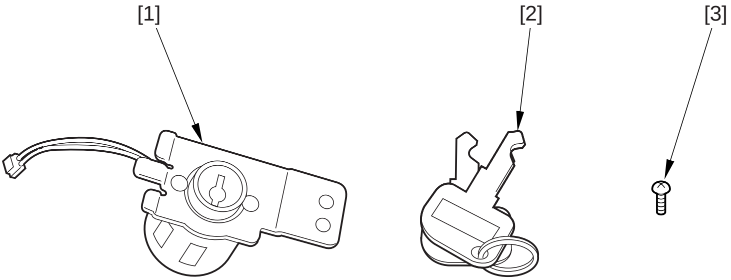
2.9.1 Checking the Contents

Key Switch Unit

[1] Key switch unit ....1 pc.

[2] Control key ....1 pc.

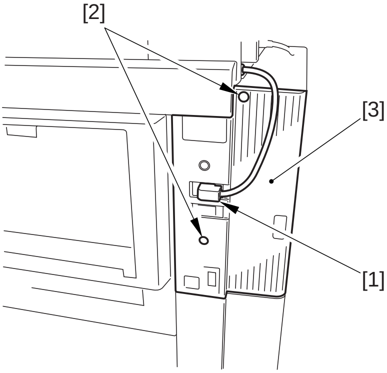
[3] Binding screw (M4x6) ..1 pc.



F-2-158

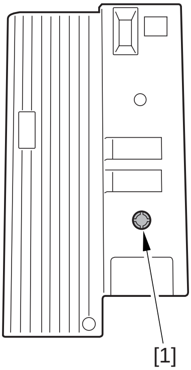
2.9.2 Installation

1) Turn off the control panel power switch.
2) Turn off the main power switch.
3) Disconnect the power plug.
4) Disconnect the reader communications cable [1].
5) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



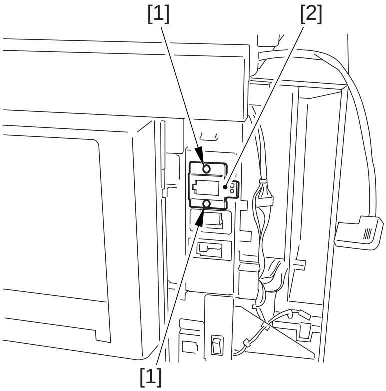
F-2-159

6) Cut off the section [1] of the right cover (upper rear) indicated in the figure.



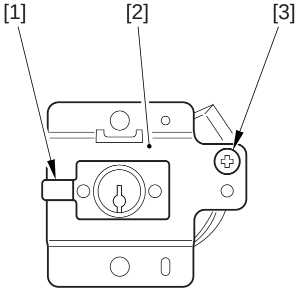
F-2-160

7) Remove the 2 screws [1], and detach the plate [2].



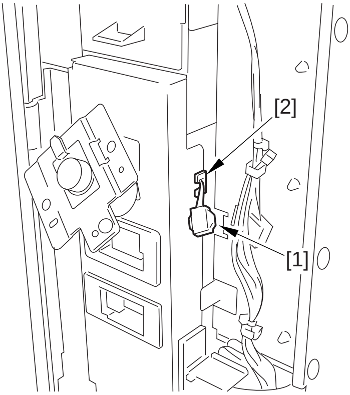
F-2-161

8) Fit the protrusion [1] of the key switch into the plate [2]; then, fix it in place using the included screw [3].



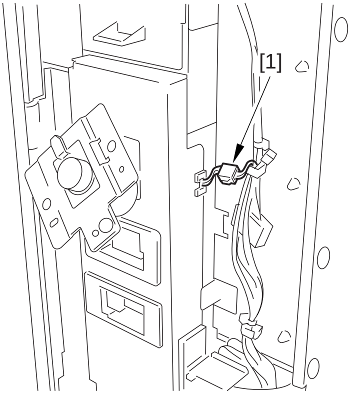
F-2-162

9) Route the harness [1] of the key switch through the wire saddle [2].



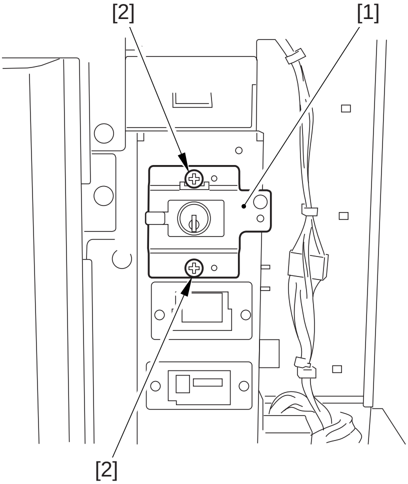
F-2-163

10) Connect the connector [1] of the key switch.



F-2-164

11) Fix the plate (key switch) [1] in place using the 2 screws [2] you removed in step 7).



F-2-165

12) Mount the right cover (upper rear) you removed in step 5).

13) Connect the power plug, and turn on the main power switch.

14) Start service mode, and make the following selections: COPIER>FUNCTION>INSTALL>KEY: then, enter '1'.

15) Turn off and then on the main power switch.

16) Check to see that a message has appeared asking for the control key.

17) Insert the control key, and check to make sure that the machine is ready to make copies.

Chapter 3

Basic
Operation

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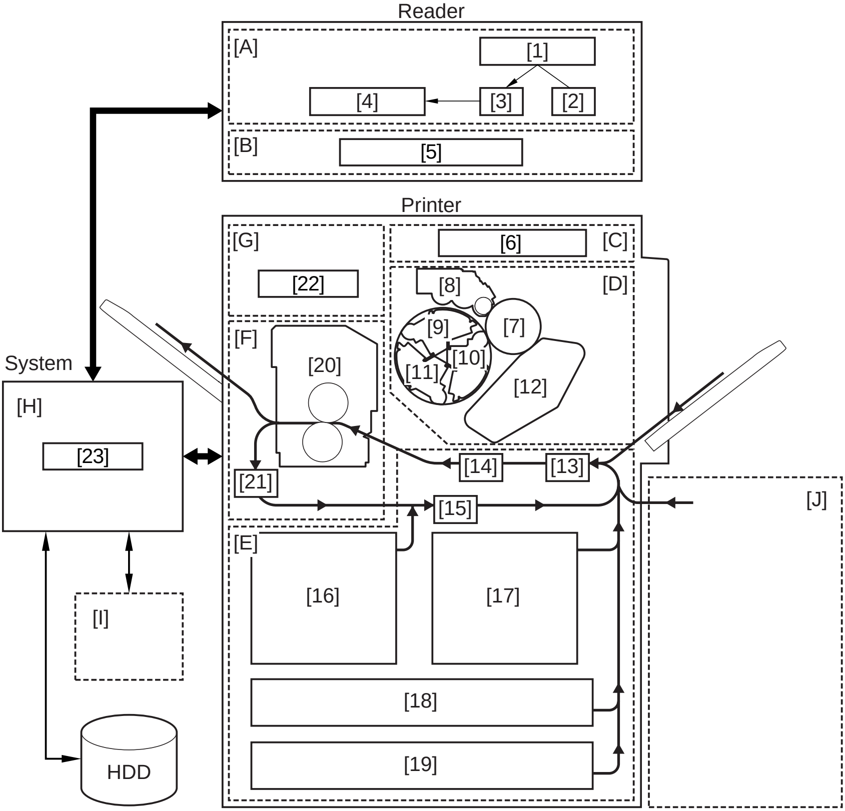
  3.1.1 Functional Construction 3-1
  3.1.2 Arrangement of the Major PCBs 3-3
  3.1.3 DC Controller 3-4
3.2 Basic Sequence 3-7
  3.2.1 Basic Sequence of Operation at Power-On 3-7
  3.2.2 Basic Sequence of Control During Printing (full-color) 3-9
  3.2.3 Basic Sequence of Operation During Printing (mono color) 3-11

3.1 Construction

3.1.1 Functional Construction

The machine is broadly divided into the following 3: reader unit, printer unit, and system unit.

Of these 3, the printer unit serves as the core of the machine, and consists of the following 5 functional blocks: laser exposure system, image formation system, pickup/feed system, fixing/delivery system, printer control system.


Reader
[A]
[1]
[2]
[3]
[4]
[B]
[5]
Printer
[G]
[22]
[C]
[6]
[D]
[7]
[8]
[9]
[10]
[11]
[12]
[F]
[20]
[21]
[13]
[14]
[15]
[E]
[16]
[17]
[18]
[19]
[J]
System
[H]
[23]
[I]
HDD

F-3-1

1.Reader Unit

[A]Original Exposure System

- [1] original
- [2] scanning lamp
- [3] optical system
- [4] CCD/analog processor PCB

[B]Reader Control System

- [5] reader controller PCB

2.Printer Unit

[C]Laser Exposure System

- [6] laser/scanner unit

[D]Image Formation System

- [7] photosensitive drum
- [8] Bk developing assembly
- [9] M developing assembly
- [10]Y developing assembly
- [11]C developing assembly
- [12]intermediate transfer belt (ITB)

[E] Pickup/Feeding System

- [13] pickup control assembly
- [14] transfer assembly
- [15] lower feeding assembly
- [16] left deck
- [17] right deck
- [18] cassette 3
- [19] cassette 4

[F] Fixing/Delivery System

- [20] fixing assembly
- [21] reversing assembly

[G] Printer Control System

- [22] DC controller PCB

3.System Unit

[H] System Control Block

- [23] Main controller PCB

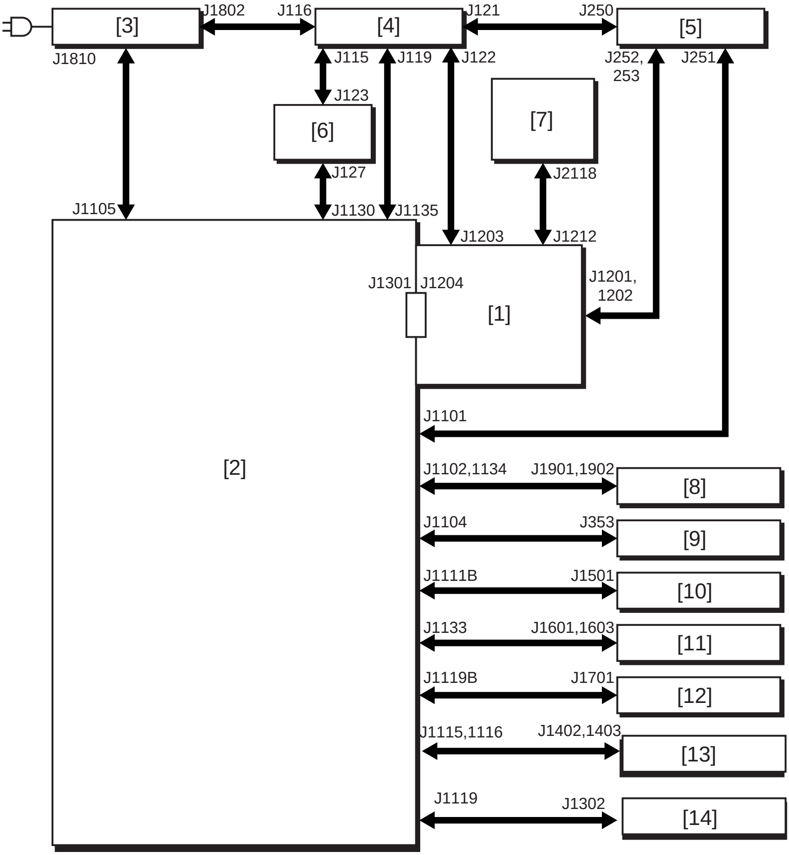
Accessory

[I] optional board

[J] side paper deck

3.1.2 Arrangement of the Major PCBs

Arrangement of the Major PCBs


[3]
J1802
J116
[4]
J121
J250
[5]
J1810
J115
J119
J122
J252, 253
J251
J123
[6]
[7]
J127
J2118
J1105
J1130
J1135
J1203
J1212
J1301
J1204
[1]
J1201, 1202
J1101
[2]
J1102,1134
J1901,1902
[8]
J1104
J353
[9]
J1111B
J1501
[10]
J1133
J1601,1603
[11]
J1119B
J1701
[12]
J1115,1116
J1402,1403
[13]
J1119
J1302
[14]

F-3-2

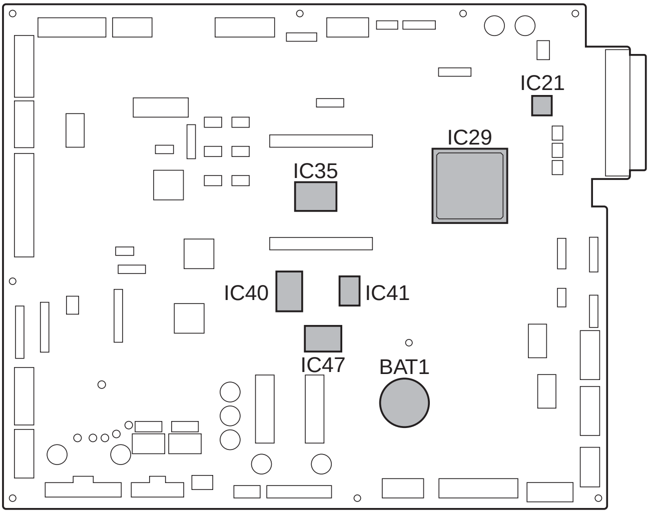
[1] Main controller PCB

[1] Main controller PCB
[2] DC controller PCB
[3] AC driver PCB
[4] main DC power supply PCB
[5] Sub DC power supply PCB 1
[6] Sub DC power supply PCB 2
[7] Control panel CPU PCB
[8] Laser drive PCB
[9] BD PCB
[10] HVT1 PCB
[11] HVT2 PCB
[12] HVT3 PCB
[13] Pickup driver PCB
[14] Fixing/feeding driver PCB

⚠ The arrows in the figure indicate connections of PCB, not the direction of signals.

3.1.3 DC Controller

The following shows the functional construction of the DC controller PCB:



F-3-3

BAT1 (lithium battery)

- serves as the backup battery for RAM.

IC21 (PWM IC)

- converts image data from ASIC1 into data processed by pulse width modulation.

IC29 (ASIC1)

- controls the laser driver, high-voltage mechanisms, fixing control mechanisms, and motors.

IC35 (CPU)

- controls printing sequence, high-voltage mechanisms, finisher, interface with the controller, and various loads (sensor, clutch, solenoid).

IC40 (Flash ROM)

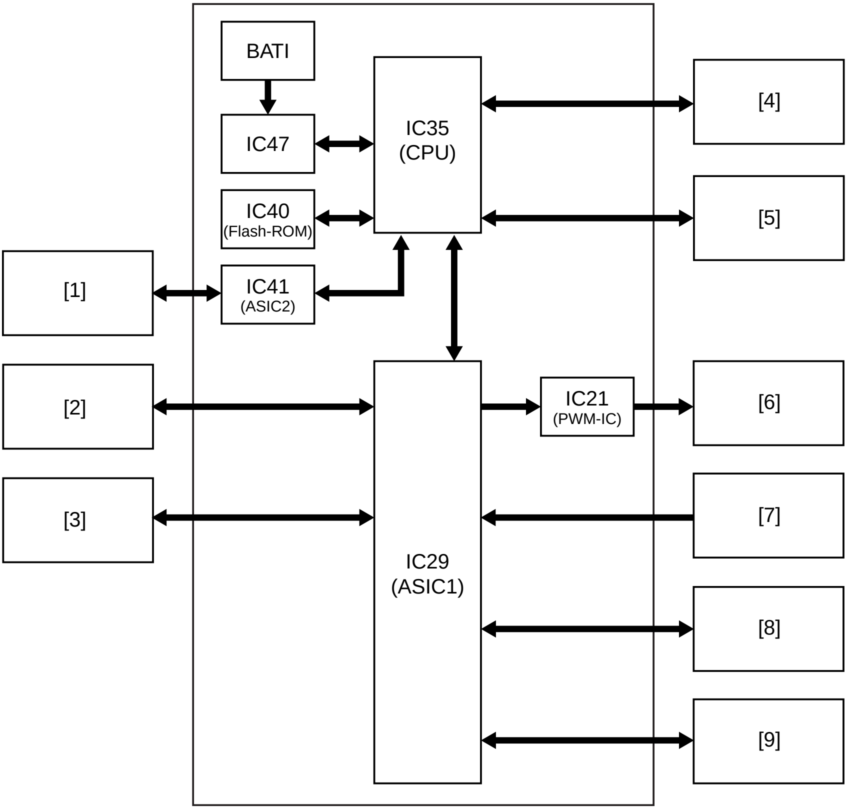
- stores firmware.

IC41 (ASIC2)

- controls communication between finisher and CPU.

IC47 (RAM)

- stores settings data (e.g., service mode).


BATI
IC47
IC40
(Flash-ROM)
IC41
(ASIC2)
IC35
(CPU)
IC29
(ASIC1)
IC21
(PWM-IC)
[1]
[2]
[3]
[4]
[5]
[6]
[7]
[8]
[9]

F-3-4

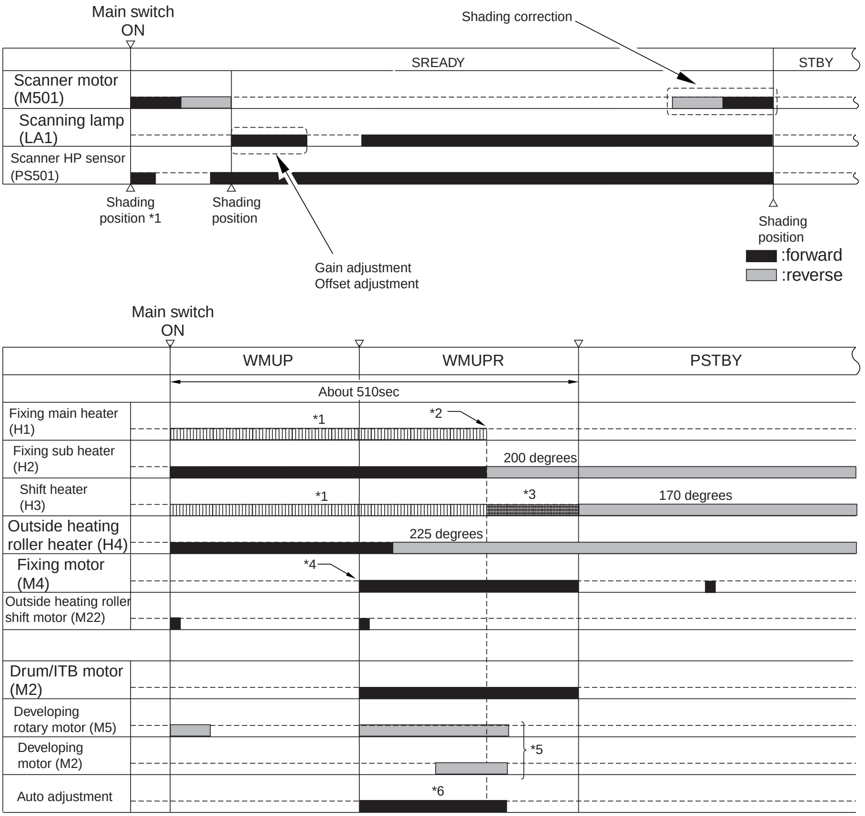
[1] Finisher (accessory)
[2] Side paper deck (accessory)
[3] Motors
[4] Main controller PCB
[5] Loads (sensor, clutch, solenoid)
[6] Laser drive PCB
[7] BD PCB
[8] HVT
[9] Fixing assembly

3.2 Basic Sequence

3.2.1 Basic Sequence of Operation at Power-On

T-3-1

Period	Description
WMUP (warm-up)	with the drive system at rest, until the temperature of the external heating roller reaches 190 deg C.
SREADY (scanner ready)	from when shading correction ends unit the Start key is pressed or the main power switch is turned off.
WMUPR (warm-up rotation)	with the drive system starting up, until the temperature of the fixing roller reaches 200 deg C, that of the pressure roller reaches 140 deg C, and that of the external heating roller reaches 225 deg C.
PSTBY (print standby)	the machine is ready to accept the copy/print request signal.


Main switch ON
Shading correction
SREADY
STBY
Scanner motor (M501)
Scanning lamp (LA1)
Scanner HP sensor (PS501)
Shading position *1
Shading position
Gain adjustment
Offset adjustment
Shading position
:forward
:reverse
Main switch ON
WMUP
WMUPR
PSTBY
About 510sec
Fixing main heater (H1)
*1
*2
Fixing sub heater (H2)
200 degrees
Shift heater (H3)
*1
*3
170 degrees
Outside heating roller heater (H4)
225 degrees
Fixing motor (M4)
*4
Outside heating roller shift motor (M22)
Drum/ITB motor (M2)
Developing rotary motor (M5)
Developing motor (M2)
*5
Auto adjustment
*6

F-3-5

*1: the fixing main heater and the pressure heater go on alternately.

*2: if the temperature of the fixing roller is 200 deg C, that of the pressure roller is 140 deg C, and that of the external heating roller is 225 deg C, the alternate activation is ended.

*3: the pressure heater is subject to activation control.

*4: if the temperature of the external roller is 190 deg C or higher, the fixing motor starts up.

*5: the motor rotates and stops for auto adjustment.

*6: the image stabilization control mechanism is executed only if the surface temperature the fixing roller is lower than 100 deg C.

- potential control
- primary transfer ATVC

- secondary transfer ATVC
- D-max control
- D-half control (when the power is turned on with its color print counter reading 500 or higher.

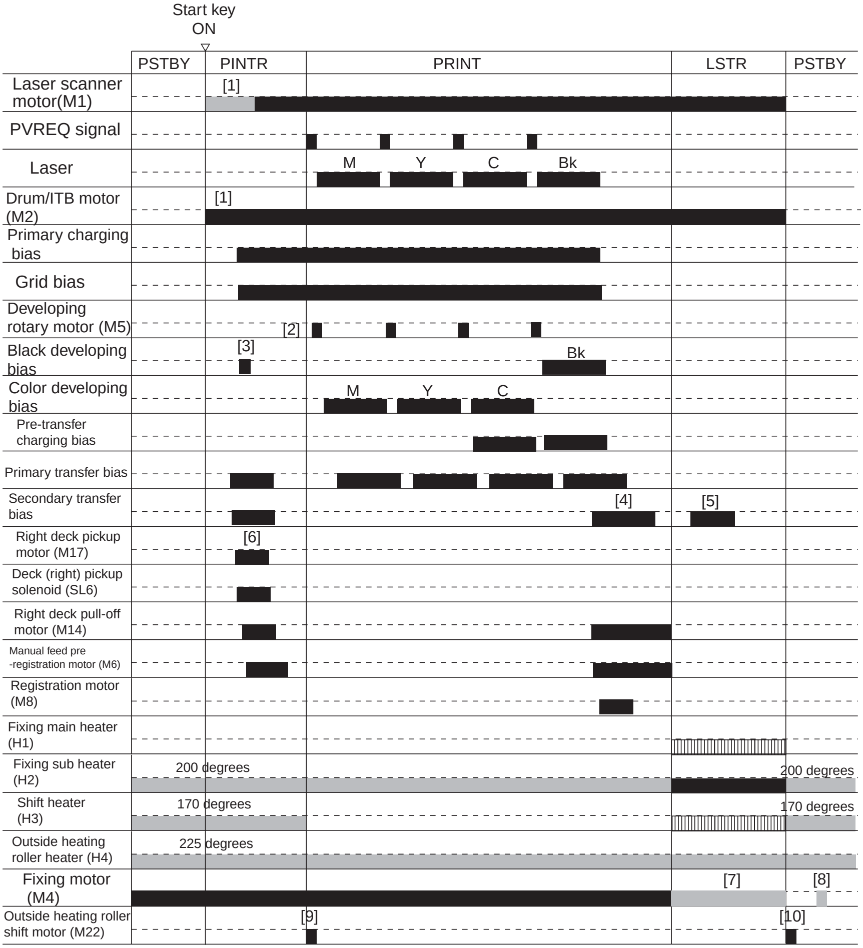
3.2.2 Basic Sequence of Control During Printing (full-color)

A4, Full-color (1 print), Right deck

T-3-2

Period	**Description**
PSTBY (print standby)	the machine is ready to receive the coy/print request signal.
PINTR (initial rotation)	from when the machine has received the print request signal to when it discharges paper.
PRINT	from when all toner has been transferred to paper and the paper is delivered.
LSTR (last rotation)	from when the paper has been delivered to when all drive has been stopped.

reading: book, 1 A4 original
printing: A4, plain paper, single-sided, full color, 1 print


Start key ON
PSTBY
PINTR
PRINT
LSTR
PSTBY
Laser scanner motor(M1)
[1]
PVREQ signal
Laser
M
Y
C
Bk
Drum/ITB motor (M2)
[1]
Primary charging bias
Grid bias
Developing rotary motor (M5)
[2]
Black developing bias
[3]
Bk
Color developing bias
M
Y
C
Pre-transfer charging bias
Primary transfer bias
Secondary transfer bias
[4]
[5]
Right deck pickup motor (M17)
[6]
Deck (right) pickup solenoid (SL6)
Right deck pull-off motor (M14)
Manual feed pre -registration motor (M6)
Registration motor (M8)
Fixing main heater (H1)
Fixing sub heater (H2)
200 degrees
200 degrees
Shift heater (H3)
170 degrees
170 degrees
Outside heating roller heater (H4)
225 degrees
Fixing motor (M4)
[7]
[8]
Outside heating roller shift motor (M22)
[9]
[10]

F-3-6

[1] used to stabilize the rotation.

[2] developing rotary shifts to home position>point of M development>point of Y development>point of C development>home position

[3] preparation for black development

[4] transfer to paper
[5] cleaning of the secondary transfer outside roller
[6] pickup from the right deck
[7] maintenance operation of the fixing roller
[8] anti-deformation operation of the fixing roller (every 30 min after the stop of the fixing roller)
[9] external heating roller brought into contact with the fixing roller
[10] external heating roller moved away from the fixing roller

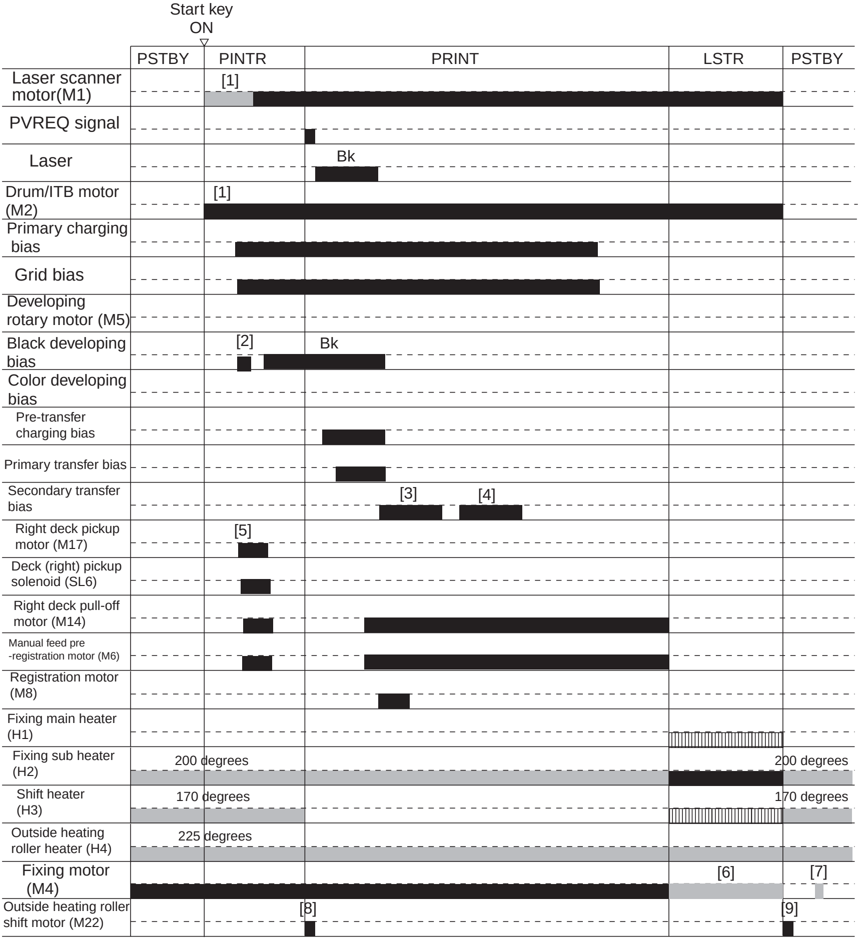
3.2.3 Basic Sequence of Operation During Printing (mono color)

A4, Mono color (1 print), Right deck

T-3-3

Period	**Description**
PSTBY (print standby)	The machine is ready to accept the copy/print request signal.
PINTR (initial rotation)	from when the machine has received the print request signal to when it generates the image signal.
PRINT	from when all toner has been transferred to paper and the paper is delivered.
LSTR (last rotation)	from when the paper has been delivered to when all drive has been stopped.

reading: book, 1 A4 original
printing: A4, plain paper, single-sided, mono color, 1 print



F-3-7

[1] period used to stabilize rotation

[2] preparation for development

[3] transfer to paper

[4] cleaning of the secondary transfer outside roller

[5] pickup from the right deck

[6] maintenance operation of the fixing roller

[7] anti-deformation operation of the fixing roller

Chapter 4

Main
Controller

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4.7.9.1 Removing the Delivery Cover 4-56
4.7.9.2 Removing the Left Cover (middle) 4-56
4.7.9.3 Removing the Controller Fan..4-56

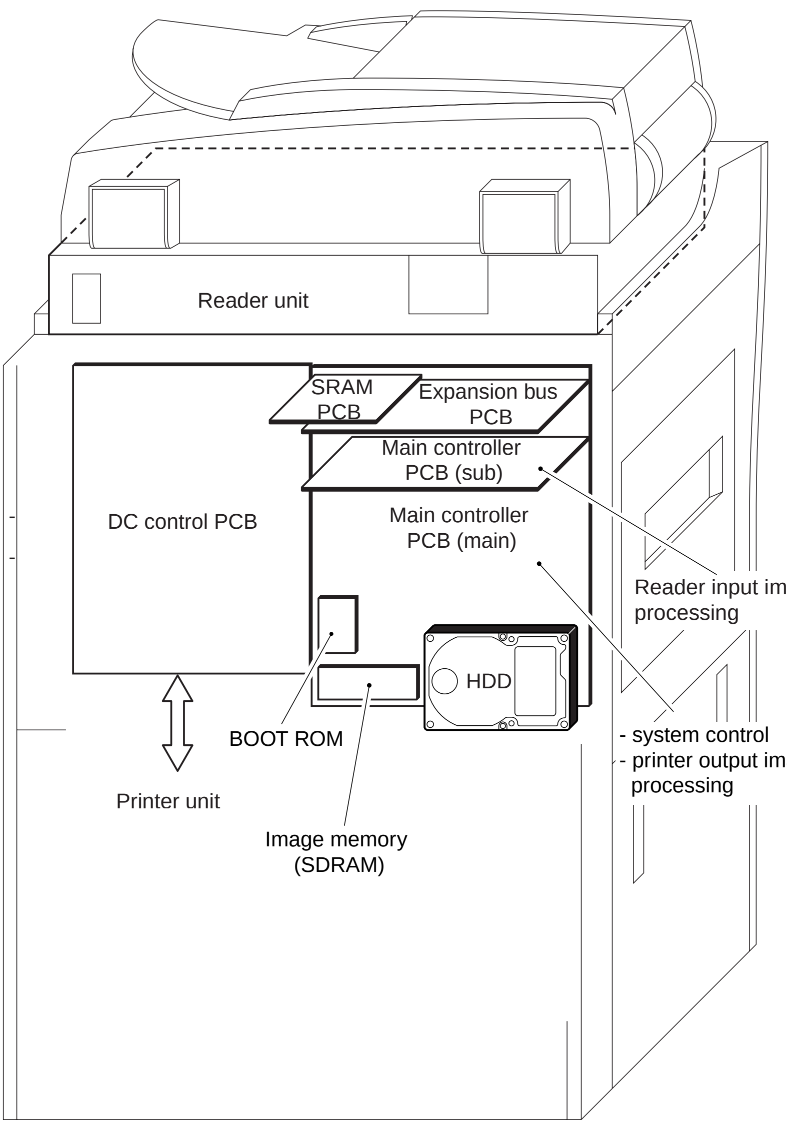
4.1 Construction

4.1.1 Functional Construction

The machine's main controller block consists of the following components that serve specific functions:

T-4-1

Item	Description
Main controller PCB (main)	controls the system, memory, and printer output image processing.
Main controller PCB (sub)	processes reader input images.
Expansion bus PCB	controls the color LCD and card reader interface.
SRAM PCB	retains service mode settings and HDD control data using SRAM.
Image memory (SDRAM)	stores image data temporarily.
BOOTROM	stores the boot program.
HDD	stores the system software; retains Box/fax function image data.

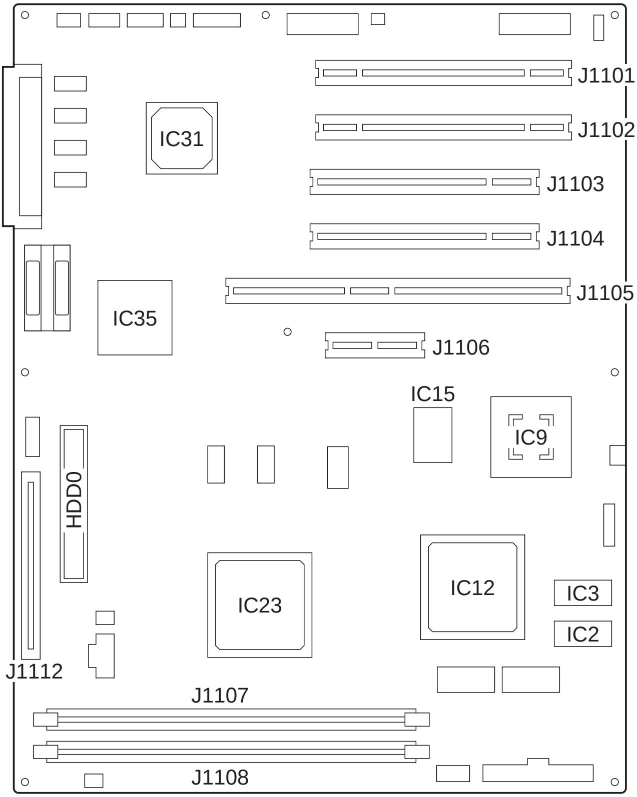

Reader unit
SRAM PCB
Expansion bus PCB
Main controller PCB (sub)
DC control PCB
Main controller PCB (main)
Reader input image processing
HDD
BOOT ROM
- system control
- printer output image processing
Printer unit
Image memory (SDRAM)

F-4-1

4.2 Construction of the Electrical Circuitry

4.2.1 Main Controller PCB (main)

The following shows the major control functions of the main controller PCB (main) grouped according to jack/IC:


J1101
J1102
J1103
J1104
J1105
J1106
IC31
IC35
IC15
IC9
HDD0
IC23
IC12
IC3
IC2
J1112
J1107
J1108

F-4-2

T-4-2

Jack No.	Description
J1101	expansion bus PCB slot

Jack No.	Description
J1102	main controller PCB (sub) connection slot
J1103	image conversion board connection slot
J1104	USB interface board/TokenRing connection slot
J1105	UFR board/OPEN I/F board connection slot
J1106	Ethernet board connection slot
J1107	image memory (SDRAM, 512 MB; standard)
J1108	image memory (SDRAM, 256 MB; optional for 100-V model or standard for 120/230-V model)
J1112	boot ROM connection slot
HDD0	hard disk connection connector

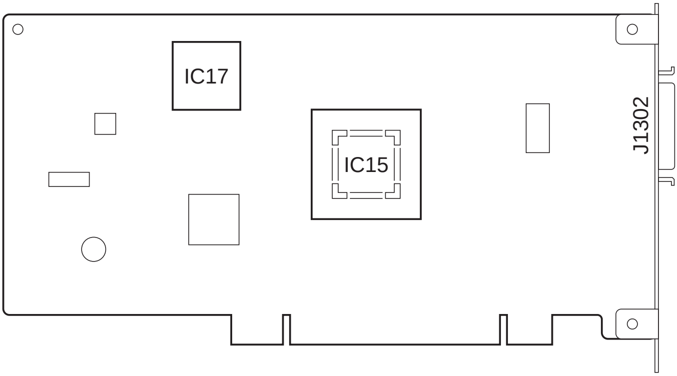
T-4-3

IC No.	Description
IC9	controls the processing of images coming from IC12 for output to the printer.
IC12	controls image input/output functions, image rotation function, resolution conversion function, and binary processing function.
IC15	controls the conversion of 4-bit serial image data coming from IC9 into 8-bit parallel image data; keeps track of video count.
IC23	CPU: system control raster JPEG compression/decompression network controller PCI bus controller ROM/RAM controller serial communication controller
IC31	I/O processing of signals

IC No.	Description
IC35	HDD controller

4.2.2 Main Controller PCB (sub)

The following shows the major functions of the main controller PCB (sub) grouped according to jack/IC:



F-4-3

T-4-4

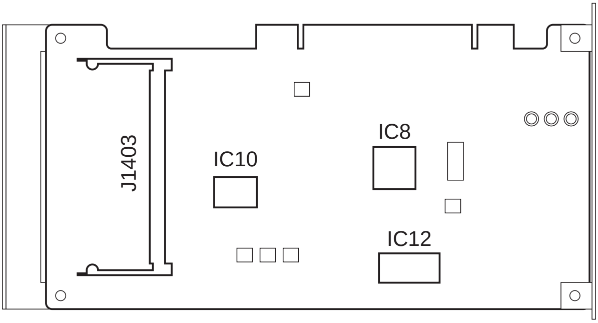
Jack No.	Description
J1302	connector for reader unit communication

T-4-5

IC No.	Description
IC15	controls image processing of input image data from the reader unit.
IC17	controls indication of images read by the scanner.

4.2.3 Expansion Bus PCB

The following shows the major functions of the expansion bus PCB grouped according to jack/IC:



F-4-4

T-4-6

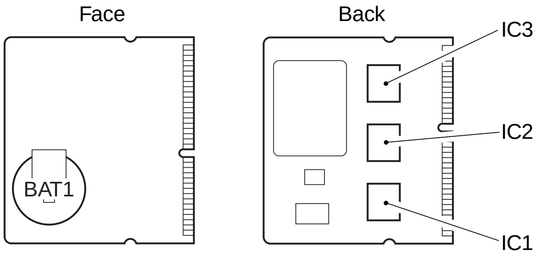
Jack No.	Description
J1403	connector for the SRAM PCB.

T-4-7

IC No.	Description
IC8	LCD controller
IC10	NE controller, coin vendor, interface ASIC for card reader connection
BAT	backup battery for SRAM

4.2.4 SRAM PCB

The following is a discussion of the major control functions of the SRAM indicated with reference to ICs:



F-4-5

T-4-8

IC No.	Description
IC1,2,3 (SRAM)	retains control information on the image data stored on the HDD; retains service mode settings data and Additional Function settings data

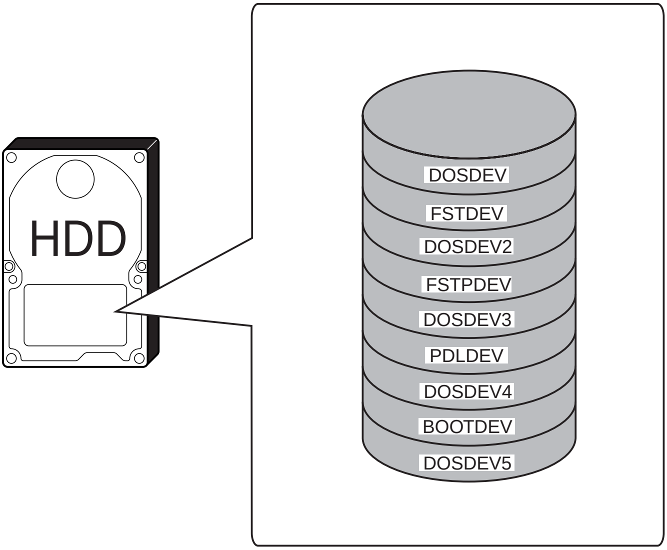
4.2.5 HDD

As many as 9 partitions (units or blocks of division) are created on the HDD, and each partition is assigned a specific task.

T-4-9

Partition	Description
DOSDEV	stores general-use data.
FSTDEV	stores image data.
DOSDEV2	stores thumbnail display data for image data.
FSTPDEV	stores image data.
DOSDEV3	stores general-use files temporarily (e.g., PDL spool).
PDLDEV	stores PDL-related files (font, registration form, ICCProfile, PDL color correction information file).
DOSDEV4	stores user data (address book, transfer settings).
BOOTDEV	stores system software.

Partition	Description
DOSDEV5	for future expansion.


HDD
DOSDEV
FSTDEV
DOSDEV2
FSTPDEV
DOSDEV3
PDLDEV
DOSDEV4
BOOTDEV
DOSDEV5

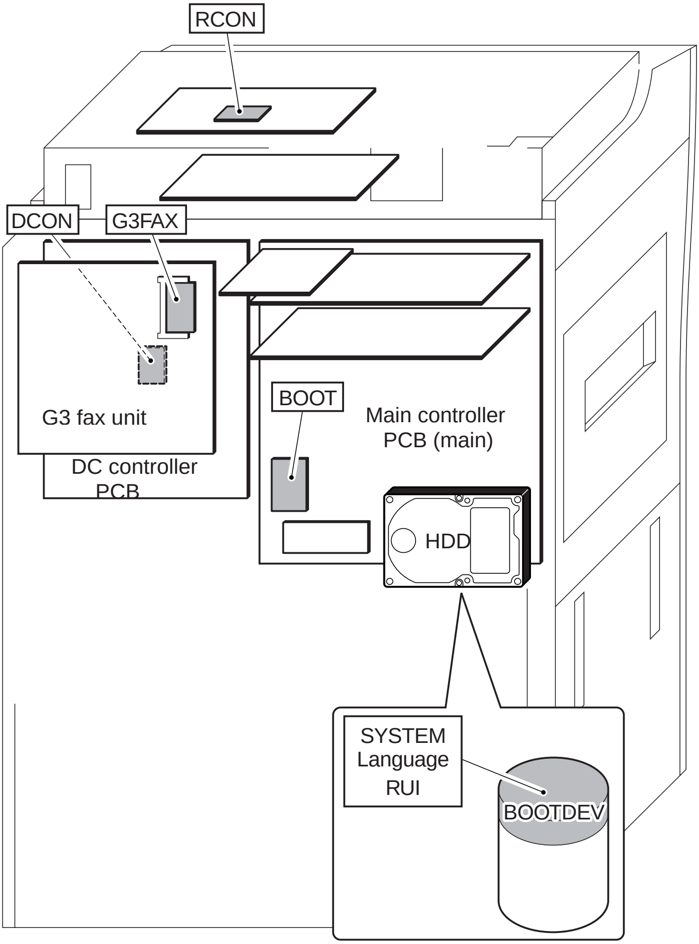
F-4-6

The following shows the construction of the machine's system software:

T-4-10

System software	Function	Location	Remarks
System	system module (overall control)	HDD (BOOTDEV)	
Language	language module (LCD indication control)	HDD (BOOTDEV)	
RUI	language module (remote UI control)	HDD (BOOTDEV)	
Boot	machine startup	BootROM	DIMM

System software	Function	Location	Remarks
G3FAX	G3 fax control	G3 fax board	DIMM
Dcon	DC controller control	DC control PCB	hardwired flash ROM
Rcon	reader controller control	reader controller PCB	hardwired flash ROM

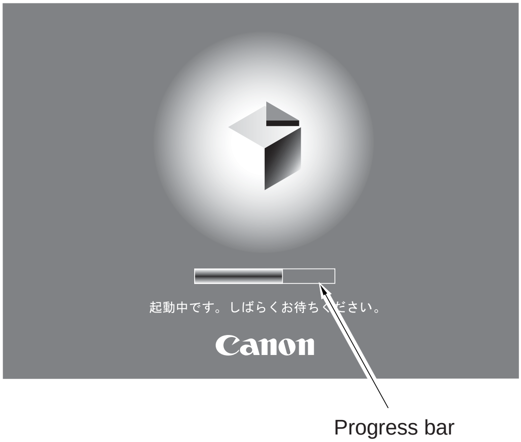

RCON
DCON
G3FAX
G3 fax unit
DC controller PCB
BOOT
Main controller PCB (main)
HDD
SYSTEM
Language
RUI
BOOTDEV

F-4-7

4.3 Start-Up Sequence

4.3.1 Overview

The system software used to control the operation of the machine is stored on the HDD.
When the machine is started up, the CPU on the main controller PCB reads the system software from the HDD into the image memory (SDRAM) of the main controller PCB for use as instructed by the boot program of the boot ROM.
The following screen remains on the control panel white the CPU is reading the system memory from the HDD into the image memory (SDRAM), with the bar indicating the progress of the startup sequence.



起動中です。しばらくお待ちください。

F-4-8

⚠Never turn off the main power while the progress bar is indicated. The CPU is accessing the HDD, and turning off the power can cause a fault (E602) on the HDD.

4.3.2 Start-Up Sequence

<Boot ROM Area>

- Self-Diagnostic Program (interval 1)

When the main power switch is turned on, the CPU of the main controller PCB runs a self-diagnostic program, which checks the condition of the image memory (SDRAM) and the HDD. If a fault is found, the machine will indicate its presence by an error code.

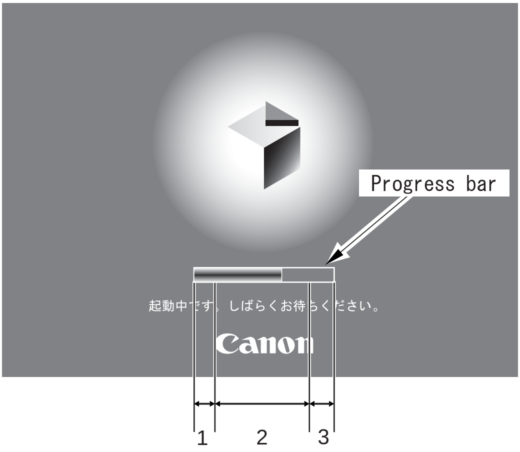
- Boot Program (interval 2)

When the self-diagnostic program ends normally, the CPU on the main controller PCB executes the boot program to read the system software from the HDD, writing it to the system area of the image memory (SDRAM).

<Image Memory (SDRAM) Area> (interval 3)

The machine initializes its various parts using the system software written into memory by the boot program (i.e., I/F settings for the main controller).

When all ends normally, the machine becomes ready for a job (indicating the Operation screen on the control panel, and changing the Start LED key from red to green).



F-4-9

- Self diagnosis program being executed

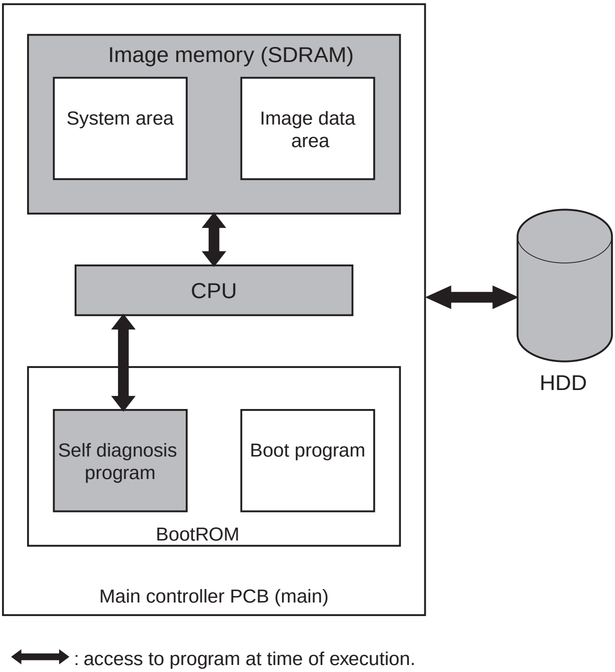


Image memory (SDRAM)
System area
Image data area
CPU
HDD
Self diagnosis program
Boot program
BootROM
Main controller PCB (main)
: access to program at time of execution.

F-4-10

- Boot Program in Execution

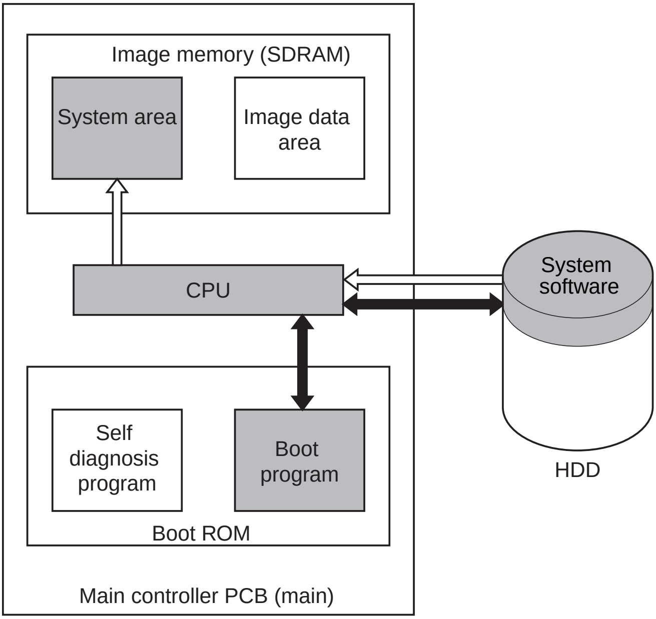


Image memory (SDRAM)
System area
Image data area
CPU
System software
HDD
Self diagnosis program
Boot program
Boot ROM
Main controller PCB (main)

⟷: access to program at time of execution

⇦: flow of system program

F-4-11

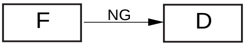
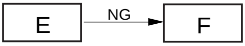
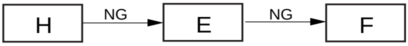
4.4 Actions when HDD Error

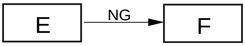
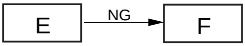
4.4.1 E602 in Detail

If the machine suffers a fault associated with E602-xxyy, it calls for different remedial actions as identified by the sub code.

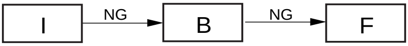
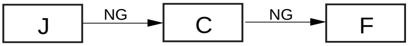
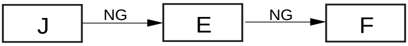
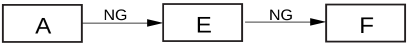
if E602-xxyy is indicated, be sure always to turn off and then on the machine (so that it will run auto recovery sequence).

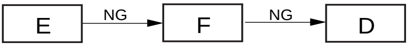
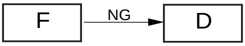
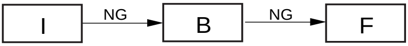
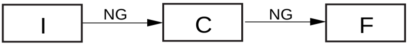
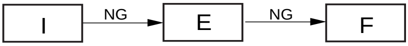
T-4-11

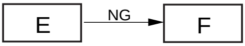
xx	**Partition**	**yy**	**Description**
00	HDD as a whole	01	The machine cannot recognize the HDD. The machine cannot find BOOTDEV at time of startup. Remedy: Turn off the main power, and check the connection of the 2 types of cables (power, IDE) connecting to the HDD; then, turn on the power. When doing so, check to see if the HDD rotates and if the power is supplied. 
		02	The machine cannot find the system software for the CPU of the main controller (main) in BOOT DEV. Remedy: 
		03	The machine detects a read error sector while it is reading data from BOOTDEV. Remedy: 
		06	The machine cannot find the system software for the CPU of the main controller (sub) in BOOTDEV.

xx	Partition	yy	Description
			Remedy: 
		07	The machine cannot find an appropriate ICCProfile in BOOTDEV/ PDLDEV. Remedy: 

T-4-12

xx	Partition	yy	Description
01	DOSDEV	01, 02	The machine has encountered a read error or a file system error while starting up. Remedy:  if xxyy is 0701, 0702. Remedy: Ask the user to use the RUI to collect address book data, transfer settings, and user mode data.  if xxyy is 0801, 0802. Remedy:  if xxyy is FF01, FF02. Remedy: 
02	FSTDEV		
03	DOSDEV2		
04	FSTPDEV		
05	DOSDEV3		
06	PDLDEV		
07	DOSDEV4		
08	BOOTDEV		
09	DOSDEV5		
FF	not identified		

xx	Partition	yy	Description
		03	The machine has encountered an HDD contact fault or, operating system error. Remedy: Turn off the main power, and check the 2 types of cable (power, IDE) connecting to the HDD; then, turn on the main power. While doing so, check to see if the HDD rotates and if power is supplied. 
		11,21	The machine has encountered an HDD contact fault. Remedy: Turn off the main power, and check the 2 types of cable (power, IDE) connecting to the HDD; then,turn on the power. While doing so, check to see if the HDD rotates and if the power is supplied. 
		13,25	The machine has encountered a read error. Remedy:  if xxyy is 0713, 0725. Remedy:  if xxyy is 0813, 0825. Remedy: 
		10,12,14,22,23, 24	The machine has encountered a system error or a packet data error.

xx	Partition	yy	Description
			Remedy: 

A :

1) Make the following selections, and enter '1': COPIER>FUNCTION>SYSTEM>CHK-TYPE.

2) Make the following selections, and press the OK key to execute: COPIER>FUNCTION>SYSTEM>HDCHECK*.

3) When done, turn off and then on the main power.

B :

1) Find the appropriate CHK-TYPE from the table 'HDD Format' ; then, make the followingselections, and type: COPIER>FUNCTION>SYSTEM>CHK-TYPE.

2) Make the following selections, and press the OK key to execute: COPIER>FUNCTION>SYSTEM>HD-CLEAR.

3) When done, turn off and then on the main power.

C :

1)** Start up the machine in normal mode (i.e., turn on the main power while pressing the 1 and 7 keys ; then, make the following selections, and press the OK key: COPIER>FUNCTION>SYSTEM>DOWNLOAD).

2) Execute formatting of DOSDEV4 using the Service Support Tool.

3) When done, turn off and then on the main power.

D:

1) Replace the main controller (main) board.

2) Remove the image memory (SDRAM) and the boot ROM from the previous board, and mount them on the new board.

E:

1)** Start up the machine in safe mode (i.e., turn on the power while pressing the 2 and 8 keys).

2) Format the HDD (ALL) using the Service Support Tool, and download the system software (SYSTEM, LANG, RUI).

3) When done, turn off and then on the main power.

F:

1)** Replace the HDD, and start up the machine in safe mode (i.e., turn on the main power while pressing the 2 and 8 keys).

2) Format the HDD (ALL) using the Service Support Tool, and download the system software (SYSTEM, LANG, RUI).

3) When done, turn off and then on the main power.

G:

1) Make the following selections, and enter '1': COPIER>FUNCTION>SYSTEM>CHK-TYPE.

2) Make the following selections, and press the OK key to execute: COPIER>FUNCTION>SYSTEM>HD-CLEAR.

3) When done, turn off and then on the main power.

H:

1) Turn off the main power; then, turn on the main power while pressing the 1 and 9 keys (so that the machine will automatically start its remedial program*, turning the control panel solid black).

2) When done (i.e., when the control panel turns white), turn off and then on the main power.

⚠ If the machine does not run its remedial program in response to the foregoing step, go to E.

I :

1) Find the appropriate CHK-TYPE in the table "HDD Format"; then, make the following selections and enter CHK-TYPE.

2) Make the selections, and press the OK key to execute: COPIER>FUNCTION>SYSTEM>HD-CHECK*.

3) When done, turn off and then on the main power.

J:

1) Make the following selections, and enter '4': OPIER>FUNCTION>SYSTEM>CHK-TYPE.

2) Make the following selections, and press the OK key to execute: COPIER>FUNCTION>SYSTEM>HD-CHECK (1 to 5 min).

3) When done, turn off and then on the main power.

* Takes about 30 to 50 min.
** As necessary, ask the user to use the RUI to collect address book data, transfer settings, and user mode settings.

T-4-13

HDD Format

Partition	CHK-TYPE	Typical data item deleted
DOSDEV	1	all relating to images (reservation, Box, fax); mode memory, routine task button
FSTDEV	1	
DOSDEV2	1	
FSTPDEV	1	
DOSDEV3	2	PDL spool
PDLDEV	3	PDL-related file (font, registration form, ICCProfile)
DOSDEV4	4	user data (address book, transfer settings), system software
BOOTDEV	4	
DOSDEV5	5	-
non specific	0	-

4.4.2 E609 in Detail

E609 is an HDD error associated with the HDD from Samsung.
See below for its cause and remedy.

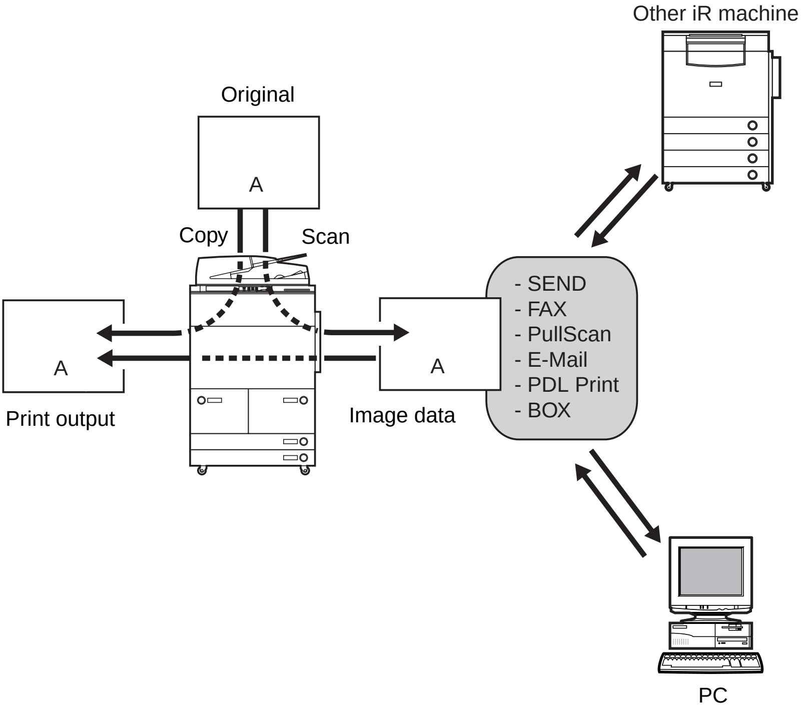
T-4-14

Code	Detail	Possible Cause/Description	Remedy
E609		Samsung HDD-related error code	
	0000	at time of start-up, there is no increase in temperature to a specific level.	Replace the HDD.
	0001	at time of sleep recovery, the temperature does not reach a specific level.	Turn off and then on the main power supply. If resetting fails, replace the HDD.

4.5 Image Processing

4.5.1 Overview of the Flow of Image Data

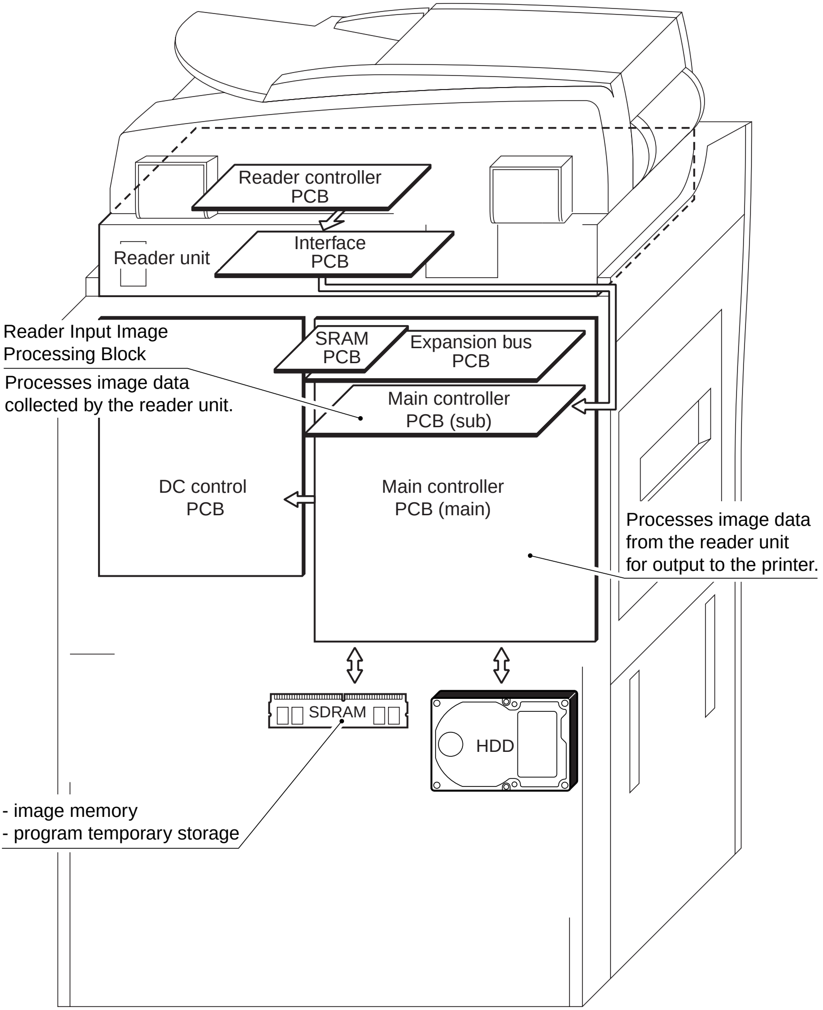
The following shows the flow of image data when the foregoing functions are used:


Other iR machine
Original
A
Copy
Scan
A
Print output
A
Image data
- SEND
- FAX
- PullScan
- E-Mail
- PDL Print
- BOX
PC

F-4-12

4.5.2 Construction of the Image Processing Modules 0003-2509

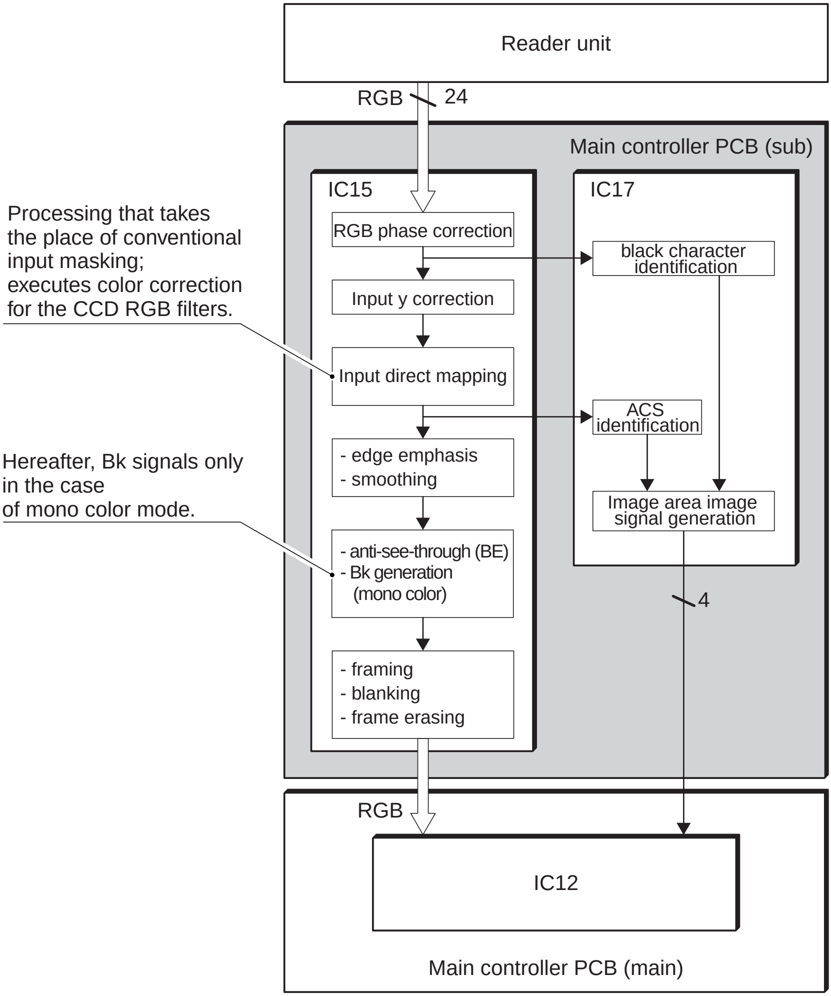
The machine's major image processing mechanisms are carried out by the main controller PCB(main). The following shows the construction of the modules associated with these mechanisms:


Reader controller PCB
Interface PCB
Reader unit
Reader Input Image Processing Block
Processes image data collected by the reader unit.
SRAM PCB
Expansion bus PCB
Main controller PCB (sub)
DC control PCB
Main controller PCB (main)
Processes image data from the reader unit for output to the printer.
SDRAM
HDD
- image memory
- program temporary storage

F-4-13

4.5.3 Reader Input Image Processing

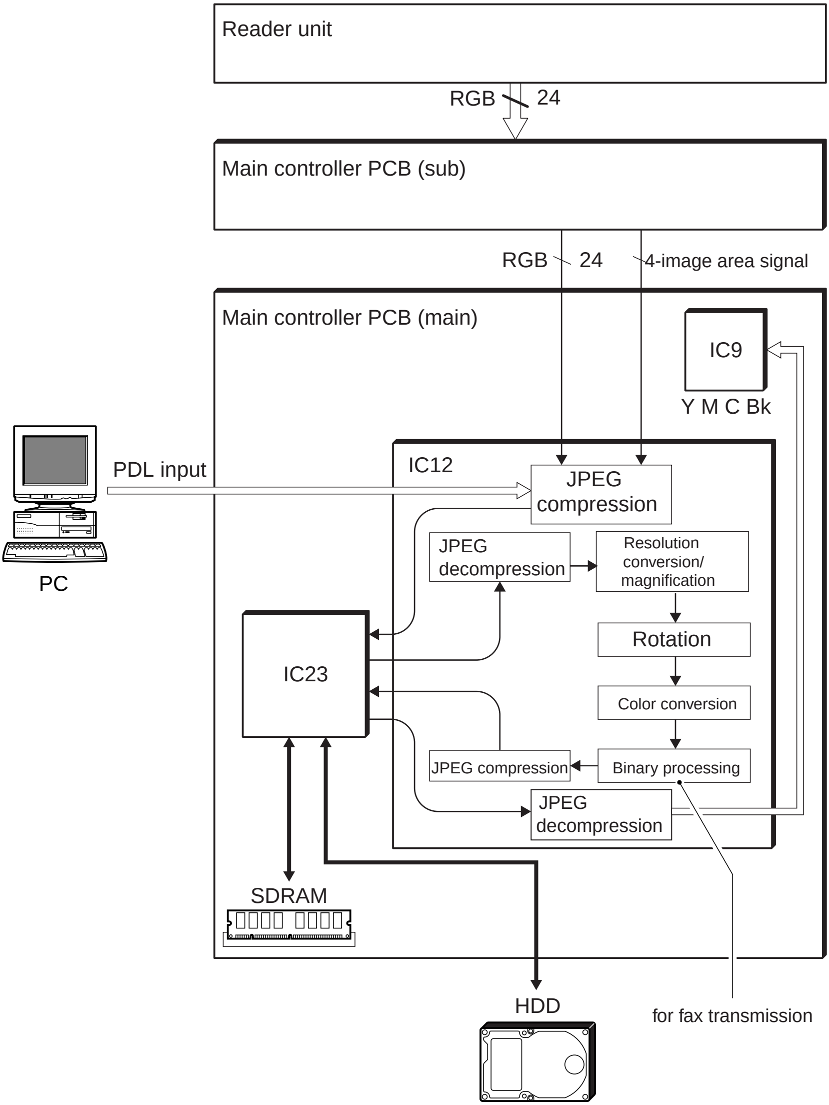
The image data (RGB data) from the CCD unit is processed by the main controller PCB (sub).


Reader unit
RGB
24
Main controller PCB (sub)
IC15
IC17
RGB phase correction
black character identification
Input y correction
Input direct mapping
ACS identification
- edge emphasis
- smoothing
Image area image signal generation
- anti-see-through (BE)
- Bk generation
(mono color)
4
- framing
- blanking
- frame erasing
RGB
IC12
Main controller PCB (main)
Processing that takes the place of conventional input masking; executes color correction for the CCD RGB filters.
Hereafter, Bk signals only in the case of mono color mode.

F-4-14

4.5.4 Compression/Decompression and Editing Blocks

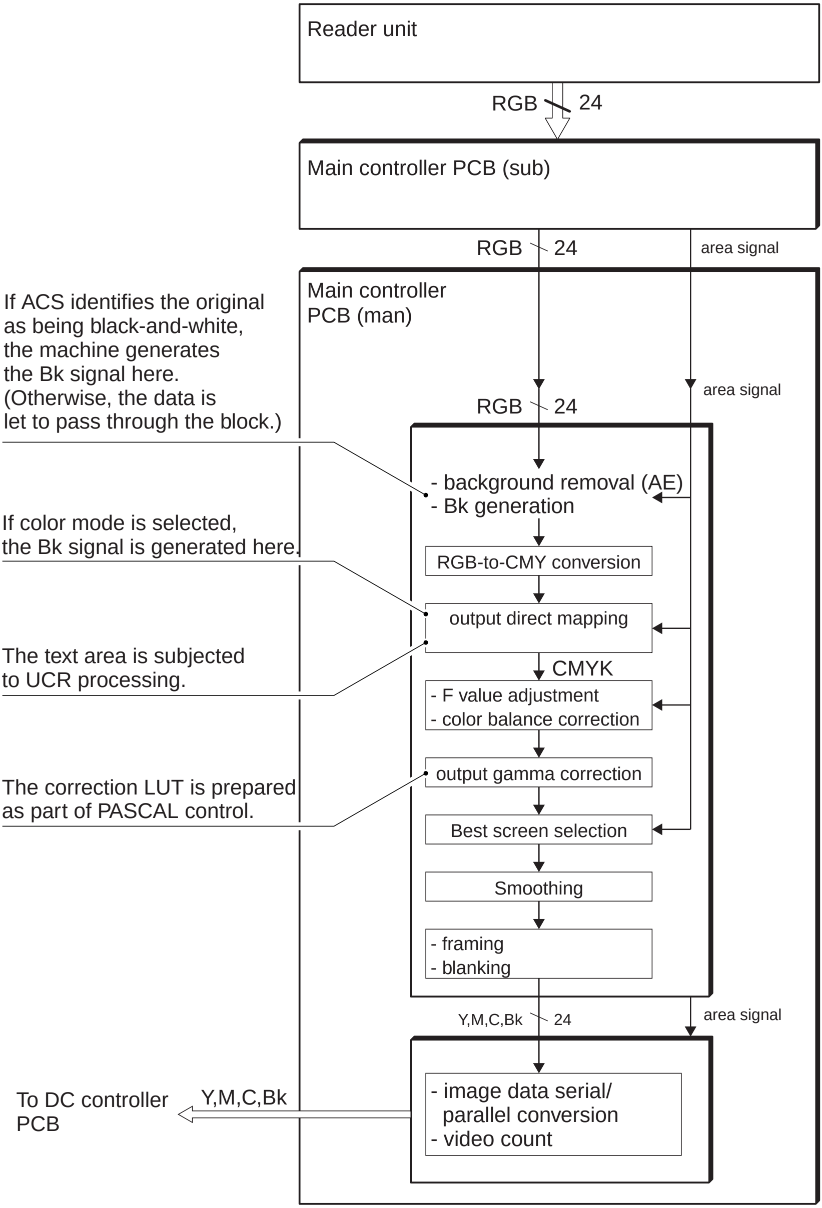
IC12 is used to compress/decompress and edit various data.


Reader unit
RGB
24
Main controller PCB (sub)
RGB
24
4-image area signal
Main controller PCB (main)
IC9
Y M C Bk
PDL input
PC
IC12
JPEG compression
JPEG decompression
Resolution conversion/ magnification
Rotation
Color conversion
IC23
JPEG compression
Binary processing
JPEG decompression
SDRAM
HDD
for fax transmission

F-4-15

4.5.5 Printer Output Image Processing

Main controller PCB processes image data from the Reader unit for output to the printer.

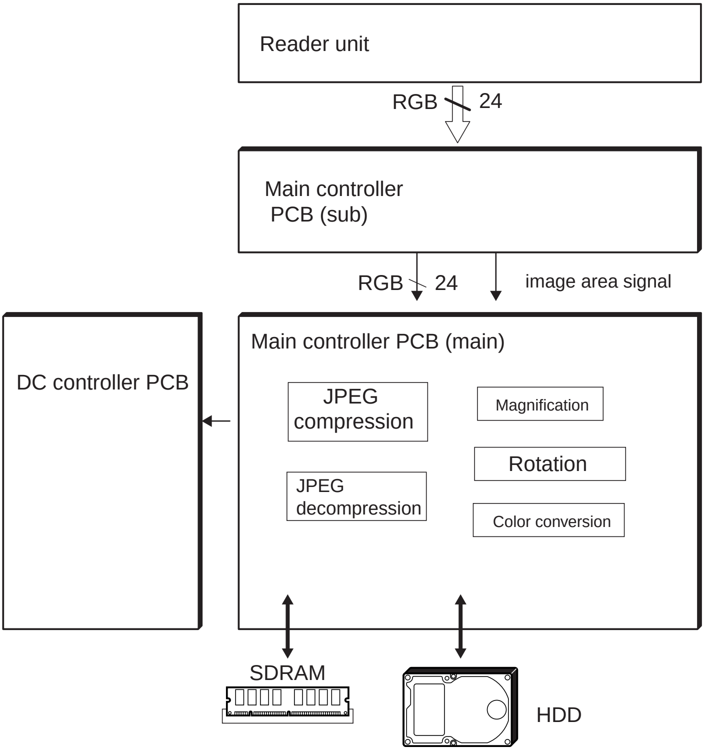

Reader unit
RGB
24
Main controller PCB (sub)
RGB
24
area signal
Main controller
PCB (man)
area signal
RGB
24
- background removal (AE)
- Bk generation
RGB-to-CMY conversion
output direct mapping
CMYK
- F value adjustment
- color balance correction
output gamma correction
Best screen selection
Smoothing
- framing
- blanking
Y,M,C,Bk
24
area signal
- image data serial/
parallel conversion
- video count
To DC controller
PCB
Y,M,C,Bk
If ACS identifies the original
as being black-and-white,
the machine generates
the Bk signal here.
(Otherwise, the data is
let to pass through the block.)
If color mode is selected,
the Bk signal is generated here.
The text area is subjected
to UCR processing.
The correction LUT is prepared
as part of PASCAL control.

F-4-16

4.6 Flow of Image Data

4.6.1 Flow of Image Data (copier function)

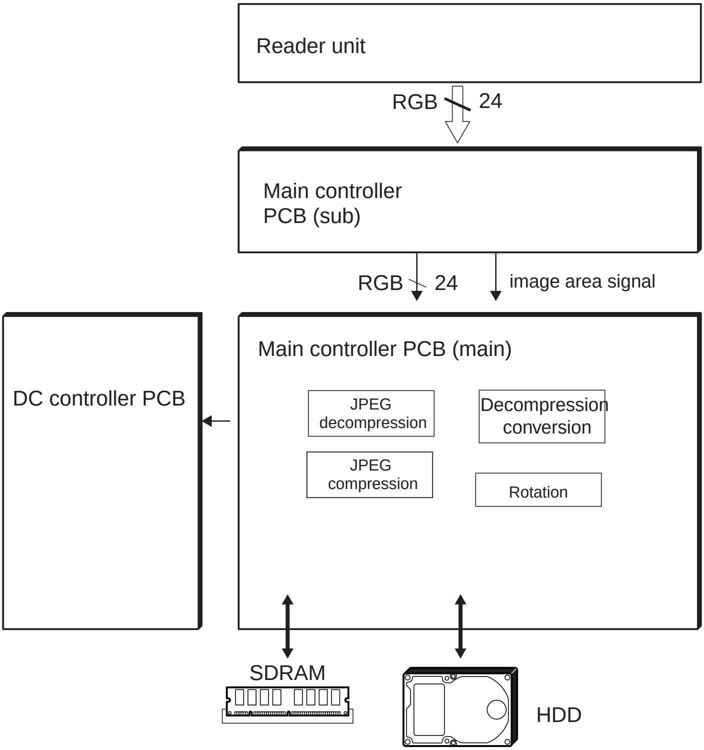
The following shows the flow of image data when copier functions are used:


Reader unit
RGB
24
Main controller PCB (sub)
RGB
24
image area signal
DC controller PCB
Main controller PCB (main)
JPEG compression
Magnification
Rotation
JPEG decompression
Color conversion
SDRAM
HDD

F-4-17

4.6.2 Flow of Image Data (Box function)

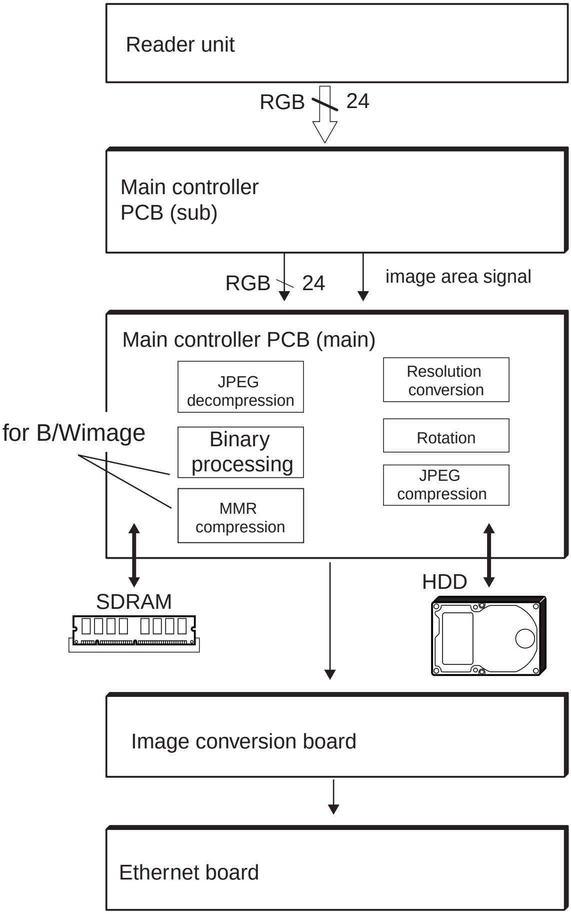
The following shows the flow of image data when Box functions are used.


Reader unit
RGB
24
Main controller PCB (sub)
RGB
24
image area signal
DC controller PCB
Main controller PCB (main)
JPEG decompression
Decompression conversion
JPEG compression
Rotation
SDRAM
HDD

F-4-18

4.6.3 Flow of Image Data (SEND function)

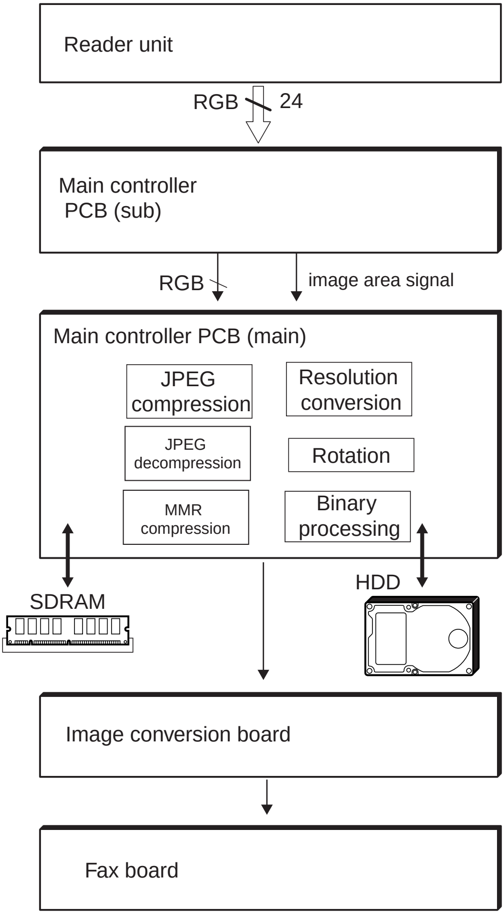
The following shows the flow of image data when SEND functions are used.


Reader unit
RGB
24
Main controller
PCB (sub)
RGB
24
image area signal
Main controller PCB (main)
JPEG
decompression
Resolution
conversion
for B/Wimage
Binary
processing
Rotation
JPEG
compression
MMR
compression
SDRAM
HDD
Image conversion board
Ethernet board

F-4-19

4.6.4 Flow of Image Data (fax transmission)

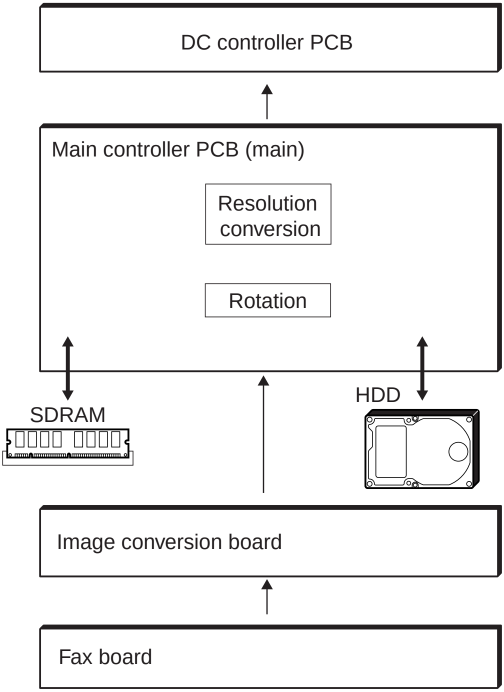
The following shows the flow of image data when fax transmission functions are used:


Reader unit
RGB
24
Main controller
PCB (sub)
RGB
image area signal
Main controller PCB (main)
JPEG
compression
Resolution
conversion
JPEG
decompression
Rotation
MMR
compression
Binary
processing
SDRAM
HDD
Image conversion board
Fax board

F-4-20

4.6.5 Image Data Flow for Fax Reception Functions

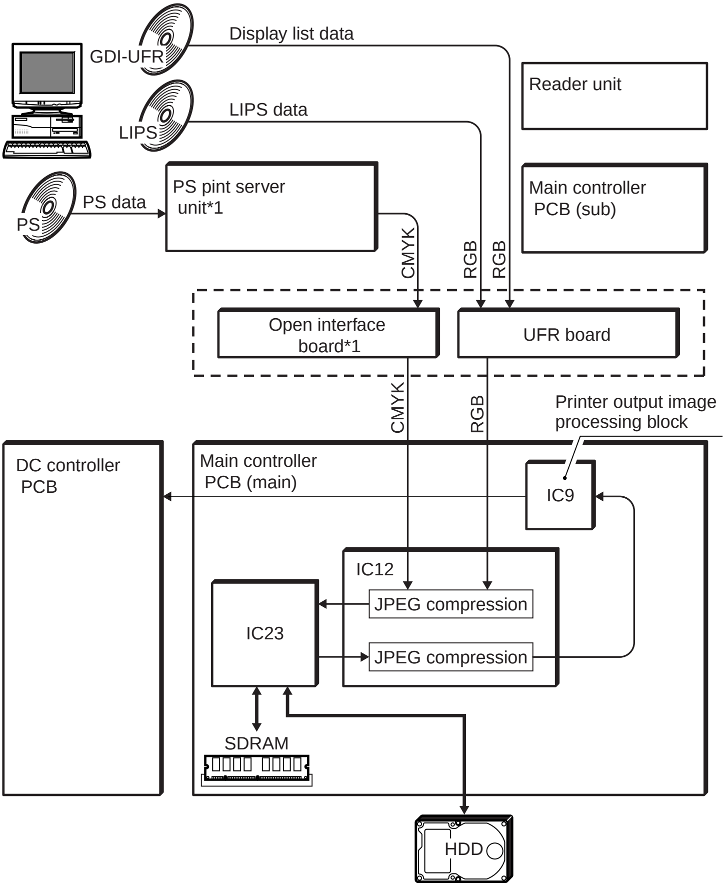
The following is the flow of image data used for fax reception functions.


DC controller PCB
Main controller PCB (main)
Resolution conversion
Rotation
SDRAM
HDD
Image conversion board
Fax board

F-4-21

4.6.6 Flow of Image Data (PDL function)

The following shows the flow of image data when PDL functions are used:


GDI-UFR
Display list data
LIPS
LIPS data
PS
PS data
PS pint server unit*1
Reader unit
Main controller PCB (sub)
CMYK
RGB
RGB
Open interface board*1
UFR board
CMYK
RGB
Printer output image processing block
DC controller PCB
Main controller PCB (main)
IC9
IC12
JPEG compression
IC23
JPEG compression
SDRAM
HDD

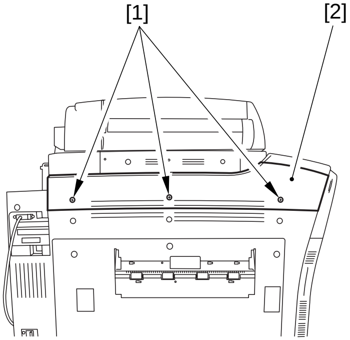
F-4-22

4.7 Parts Replacement Procedure

4.7.1 Controller Box

4.7.1.1 Removing the Left Cover (upper)

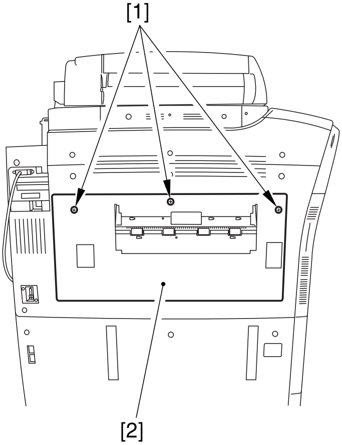
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-4-23

4.7.1.2 Removing the Delivery Cover

1) Remove the 3 screws [1], and detach the delivery cover [2].

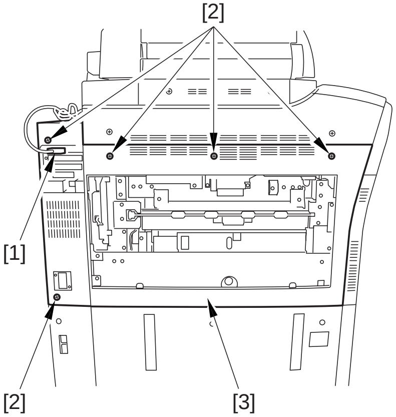


F-4-24

4.7.1.3 Removing the Left Cover (middle)

1) Disconnect the connector [1].

2) Remove the 5 screws [2], and detach the left cover (middle) [3].

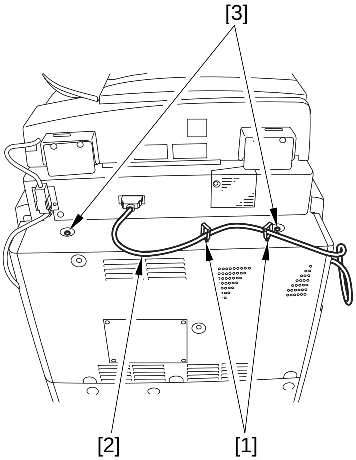


F-4-25

4.7.1.4 Removing the Rear Cover (upper)

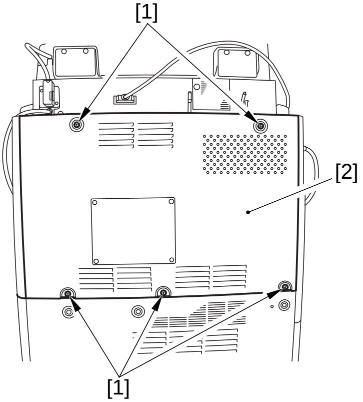
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-4-26

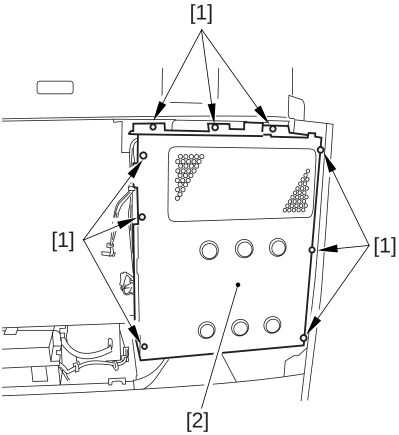
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



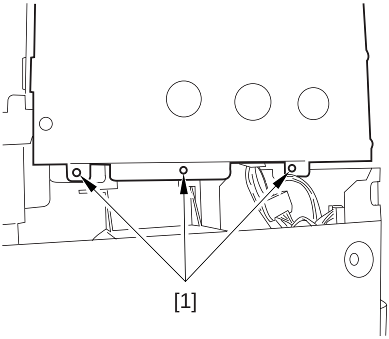
F-4-27

4.7.1.5 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



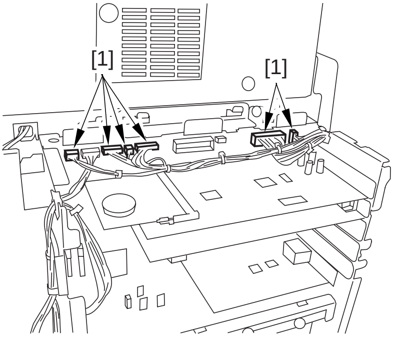
F-4-28



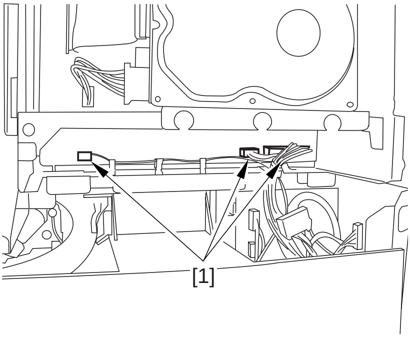
F-4-29

4.7.1.6 Removing the Controller Box

1) Disconnect the 9 connectors [1].

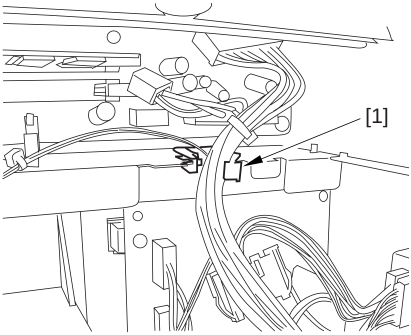


F-4-30

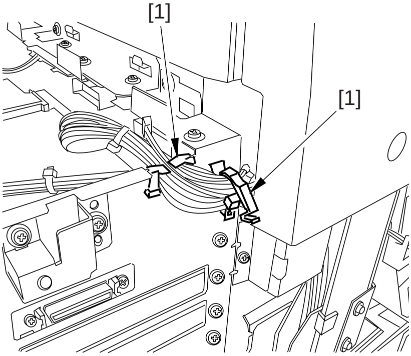


F-4-31

2) Free the harness from the 3 harness retainers [1].

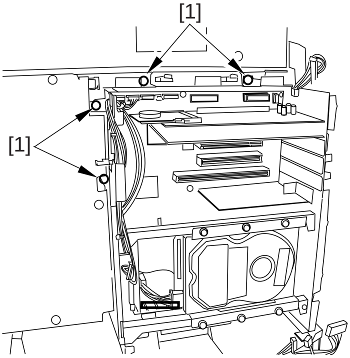


F-4-32

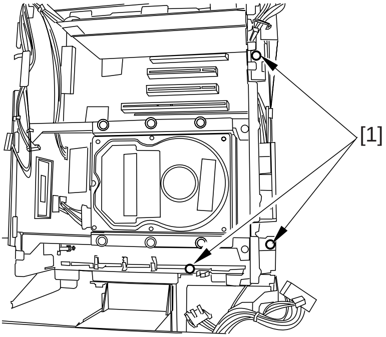


F-4-33

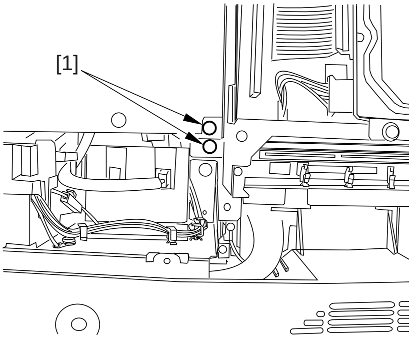
3) Remove the 9 screws [1] used to fix the main controller box in place.



F-4-34

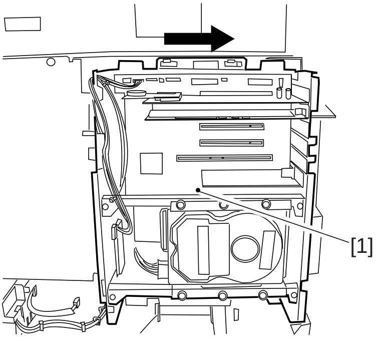


F-4-35



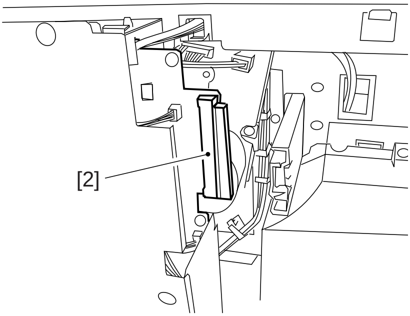
F-4-36

4) Slide the main controller box [1] toward the delivery side to detach.



F-4-37

⚠ During removal/mounting, be sure to take care not to damage the connector [2] found at the joint to the DC controller PCB.

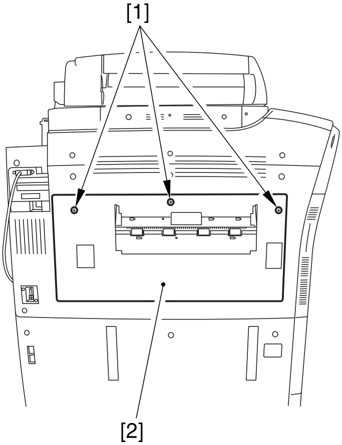


F-4-38

4.7.2 Main Controller PCB (main)

4.7.2.1 Removing the Delivery Cover

1) Remove the 3 screws [1], and detach the delivery cover [2].

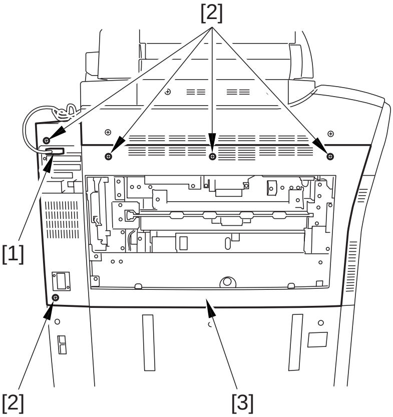


F-4-39

4.7.2.2 Removing the Left Cover (middle)

1) Disconnect the connector [1].

2) Remove the 5 screws [2], and detach the left cover (middle) [3].

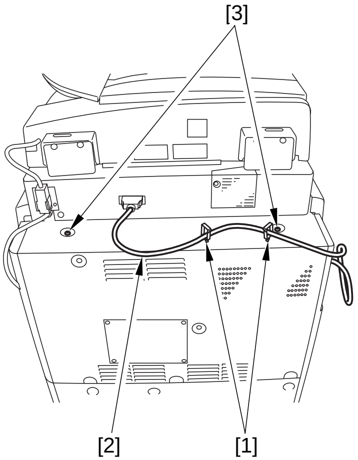


F-4-40

4.7.2.3 Removing the Rear Cover (upper)

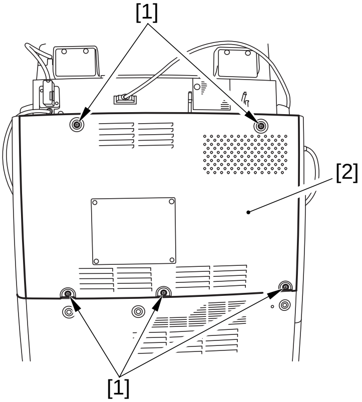
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-4-41

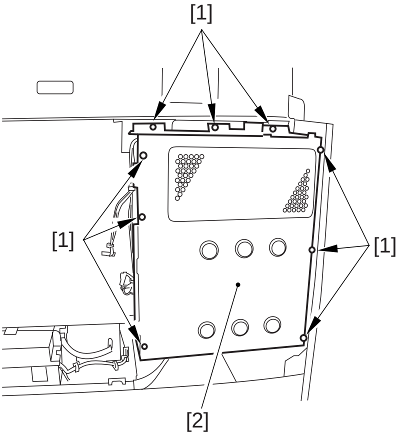
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



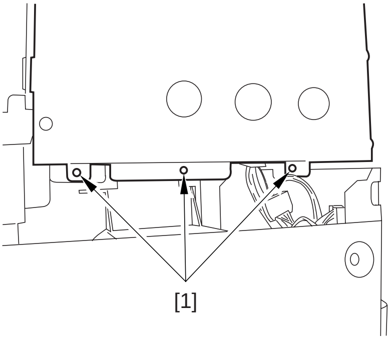
F-4-42

4.7.2.4 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



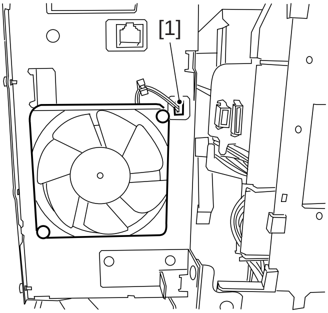
F-4-43



F-4-44

4.7.2.5 Removing the Main Controller PCB (main)

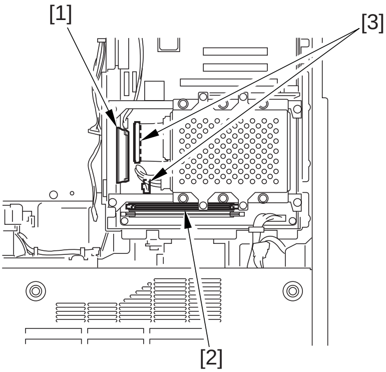
1) Disconnect the connector [1] of the controller fan.



F-4-45

2) Remove the boot ROM [1] and the image memory (SDRAM) [2].

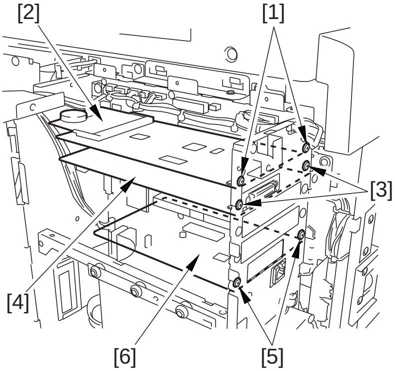
3) Disconnect the 2 connectors [3].



F-4-46

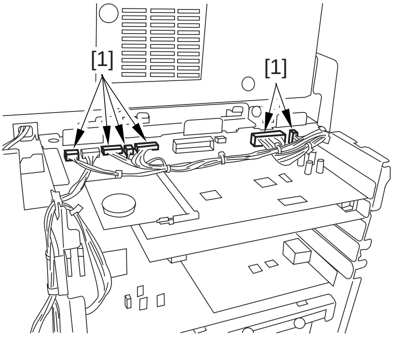
4) Remove the 2 screws each [1] [3] [5], and detach the following:

- expansion bus PCB [2].
- main controller PCB (sub) [4]
- Ethernet board [6]

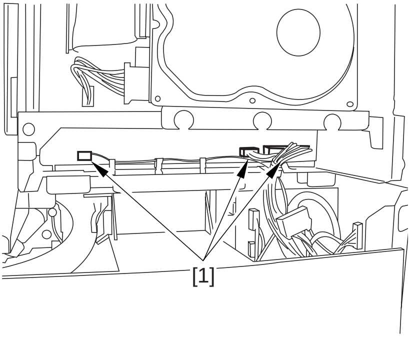


F-4-47

5) Disconnect the 9 connectors [1].

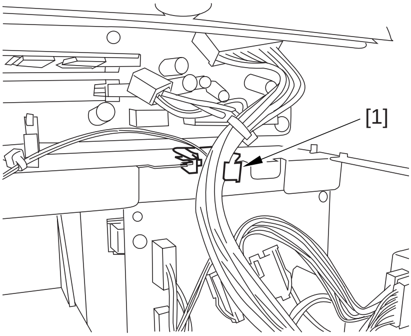


F-4-48

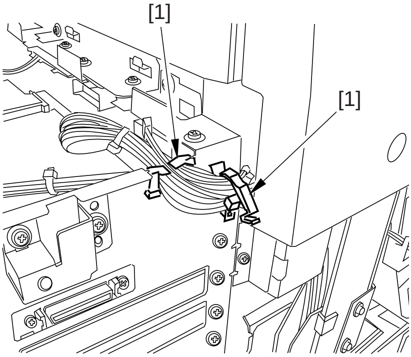


F-4-49

6) Free the harness from the 3 harness retainers [1].

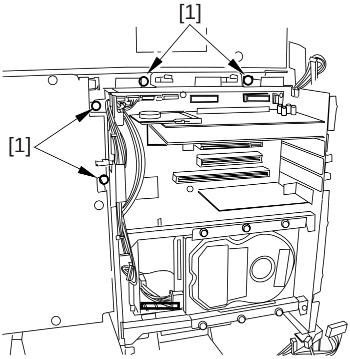


F-4-50

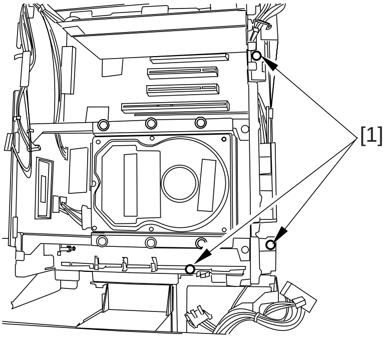


F-4-51

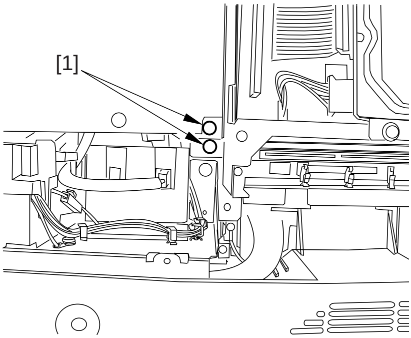
7) Remove the 9 screws [1] used to hold the main controller box in place.



F-4-52

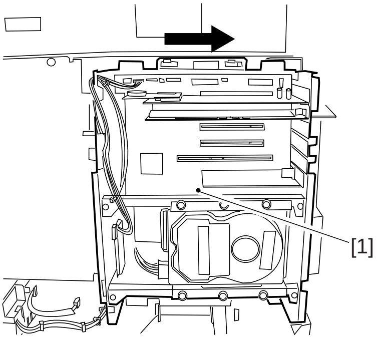


F-4-53



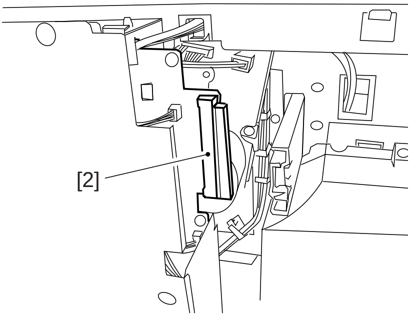
F-4-54

8) Slide the main controller box [1] toward the delivery side.



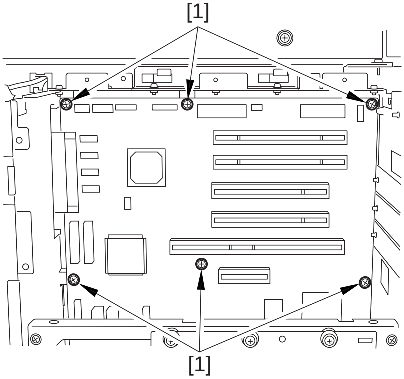
F-4-55

⚠ When sliding the DC controller box, be sure to take care so as not to damage the connector [2] in the joint to the DC controller PCB.

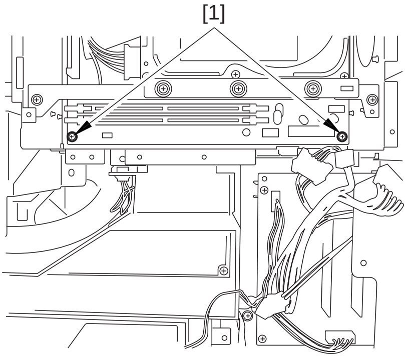


F-4-56

9) Remove the 8 screws [1], and detach the main controller PCB [2].



F-4-57

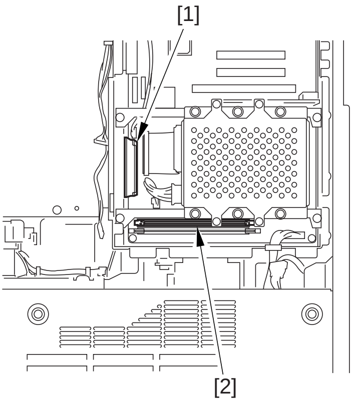


F-4-58

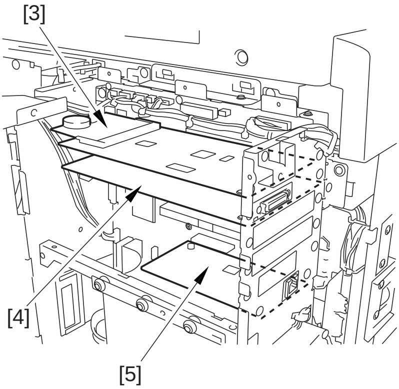
4.7.2.6 After Replacing the Main Controller PCB (main)

After mounting the main controller PCB (main), be sure to attach all PCBs you may have removed before replacement:

[1] boot ROM
[2] image memory (SDRAM)
[3] expansion bus PCB
[4] main controller PCB (sub)
[5] Ethernet board



F-4-59

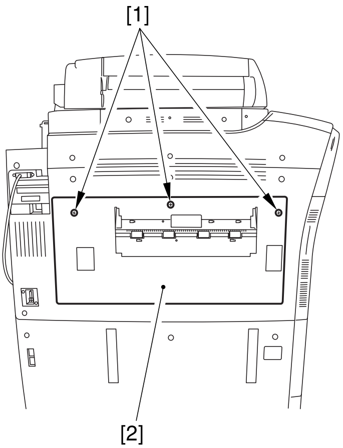


F-4-60

4.7.3 Main Controller PCB (sub)

4.7.3.1 Removing the Delivery Cover

1) Remove the 3 screws [1], and detach the delivery cover [2].

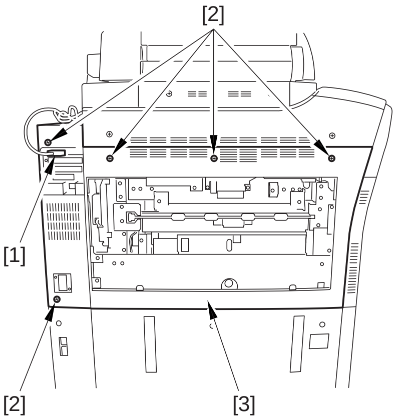


F-4-61

4.7.3.2 Removing the Left Cover (middle)

1) Disconnect the connector [1].

2) Remove the 5 screws [2], and detach the left cover (middle) [3].

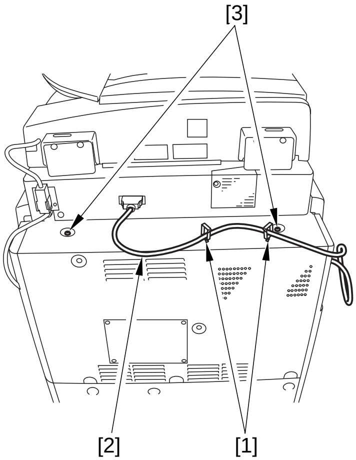


F-4-62

4.7.3.3 Removing the Rear Cover (upper)

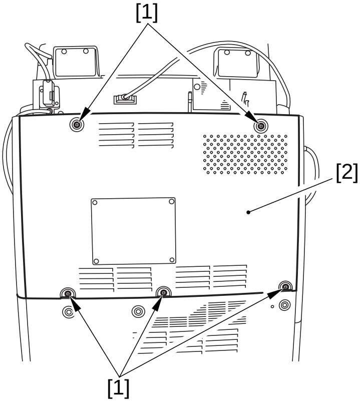
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-4-63

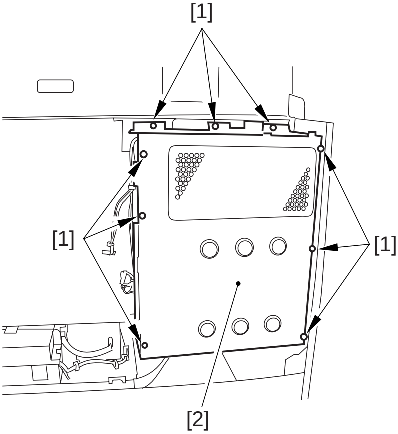
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



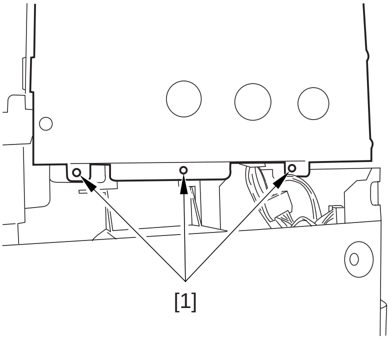
F-4-64

4.7.3.4 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



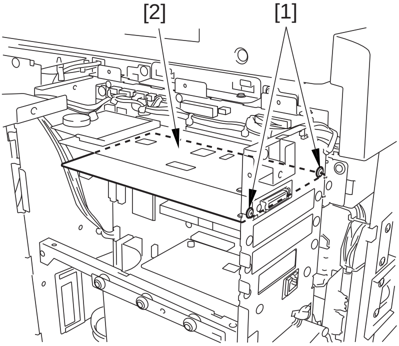
F-4-65



F-4-66

4.7.3.5 Removing the Main Controller PCB (sub)

1) Remove the 2 screws [1], and detach the main controller PCB (sub) [2].



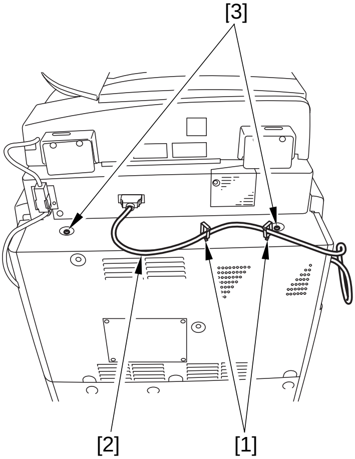
F-4-67

4.7.4 Expansion Bus PCB

4.7.4.1 Removing the Rear Cover (upper)

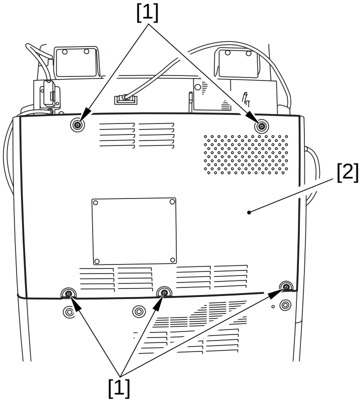
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-4-68

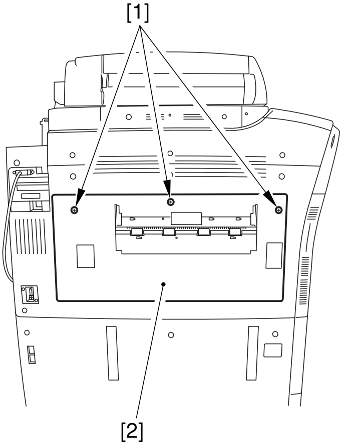
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-4-69

4.7.4.2 Removing the Delivery Cover

1) Remove the 3 screws [1], and detach the delivery cover [2].

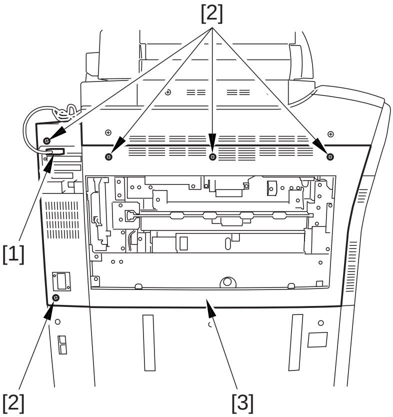


F-4-70

4.7.4.3 Removing the Left Cover (middle)

1) Disconnect the connector [1].

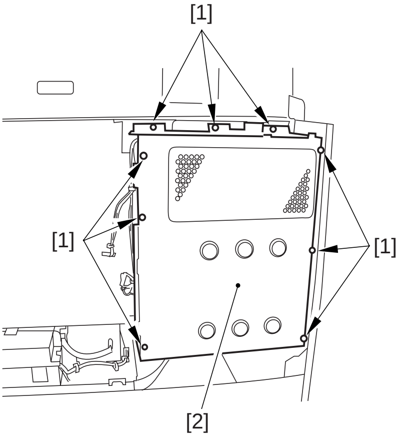
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



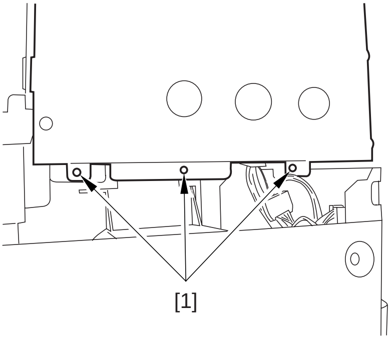
F-4-71

4.7.4.4 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



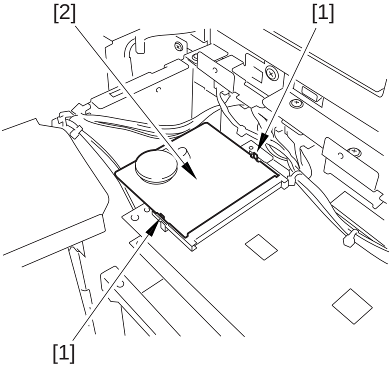
F-4-72



F-4-73

4.7.4.5 Removing the SRAM Board

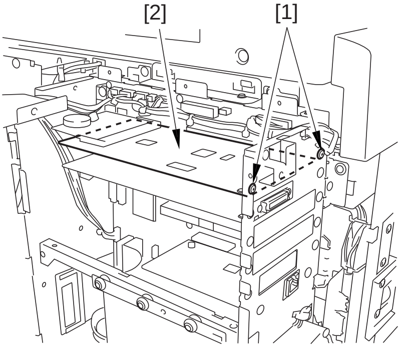
1) Release the 2 locks [1], and detach the SRAM board [2].



F-4-74

4.7.4.6 Removing the Expansion Bus PCB

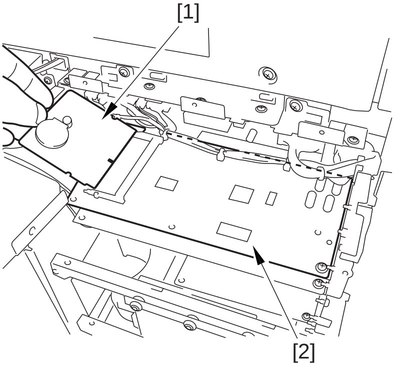
1) Remove the 2 screws [1], and detach the expansion bus PCB [2].



F-4-75

4.7.4.7 After Replacing the Expansion PCB

Mount the SRAM PCB [1] removed from the existing PCB to the newly mounted expansion bus PCB [2].



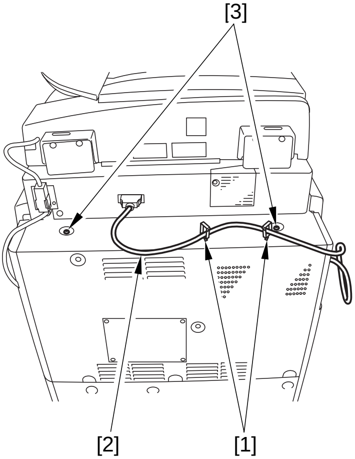
F-4-76

4.7.5 SRAM PCB

4.7.5.1 Removing the Rear Cover (upper)

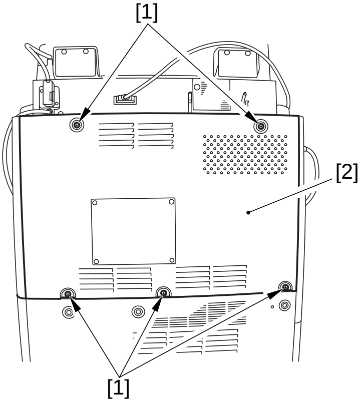
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-4-77

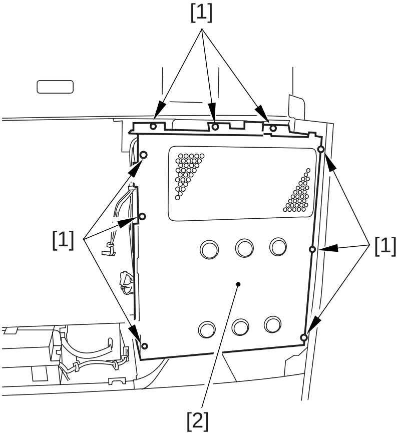
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



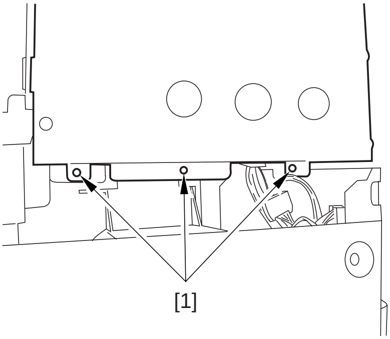
F-4-78

4.7.5.2 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



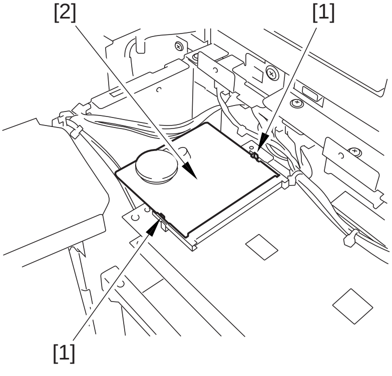
F-4-79



F-4-80

4.7.5.3 Removing the SRAM Board

1) Release the 2 locks [1], and detach the SRAM board [2].



F-4-81

4.7.5.4 After Replacing the SRAM Board

⚠

- Inform the user that replacing the SRAM board will cause all image data in Box to be lost. Be sure to obtain the user's consent before starting the work.
- **Be sure that the SRAM board you are using is a new one.**

  The machine will be likely to malfunction if you use a RAM that has been used in a different printer unit.

1) Replace the SRAM board, and turn on the main power. (The machine will execute automatic initialization.)
2) See that the machine indicates the message "Turn On the Power Switch on the Right Side" on its control panel. Turn off and then on the power.
3) Initialize the RAM.

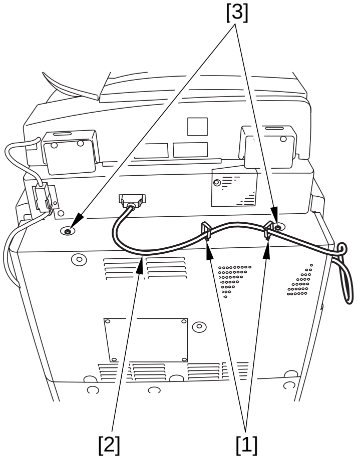
COPIER>FUNCTION>CLEAR>MN-CON

Make the foregoing selections, and press the OK key.

4.7.6 UFR Board

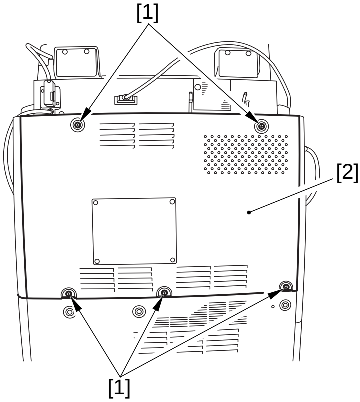
4.7.6.1 Removing the Rear Cover (upper)

1) Free the cable [2] from the 2 cable clamps [1].
2) Remove the 2 screws [3].



F-4-82

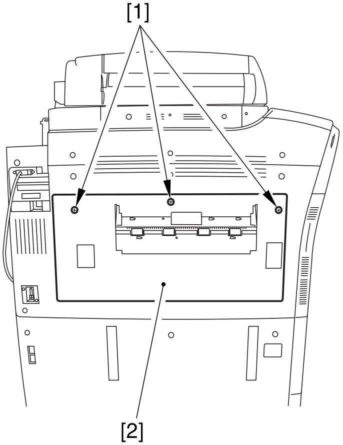
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-4-83

4.7.6.2 Removing the Delivery Cover

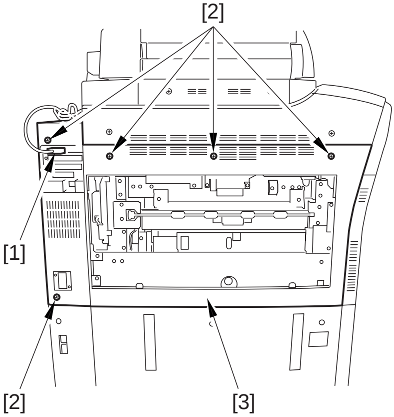
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-4-84

4.7.6.3 Removing the Left Cover (middle)

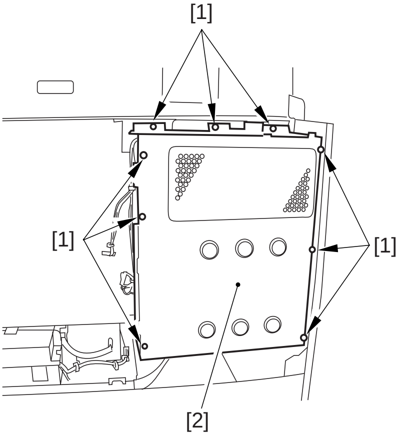
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



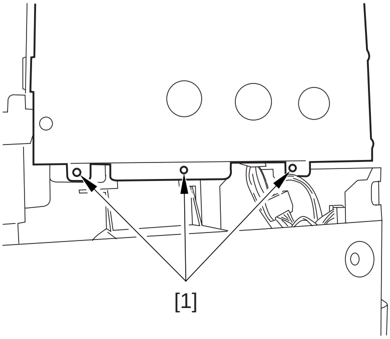
F-4-85

4.7.6.4 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



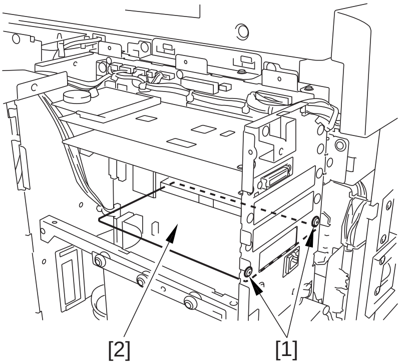
F-4-86



F-4-87

4.7.6.5 Removing the UFR Board

1) Remove the 2 screws [1], and detach the UFR board [2].



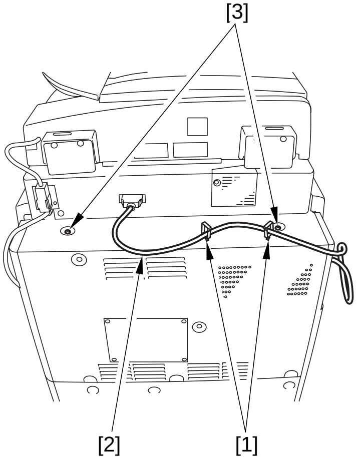
F-4-88

4.7.7 Ethernet Board

4.7.7.1 Removing the Rear Cover (upper)

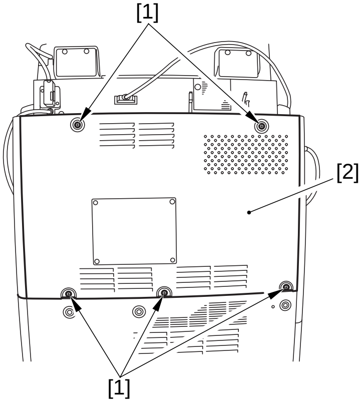
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-4-89

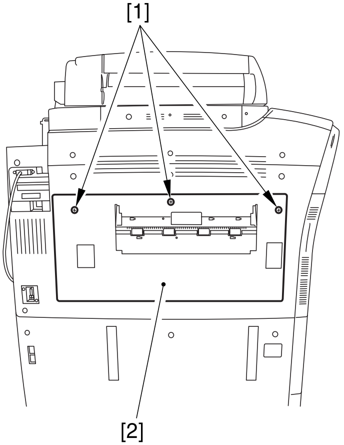
3) Remove the 6 screws [1], and detach the rear cover (upper) [2].



F-4-90

4.7.7.2 Removing the Delivery Cover

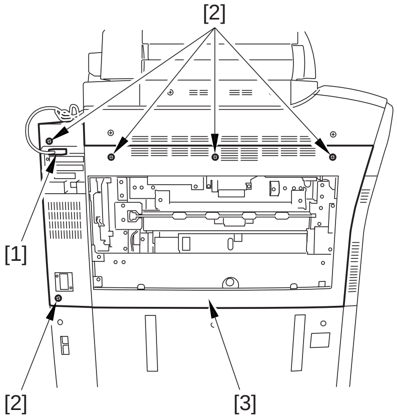
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-4-91

4.7.7.3 Removing the Left Cover (middle)

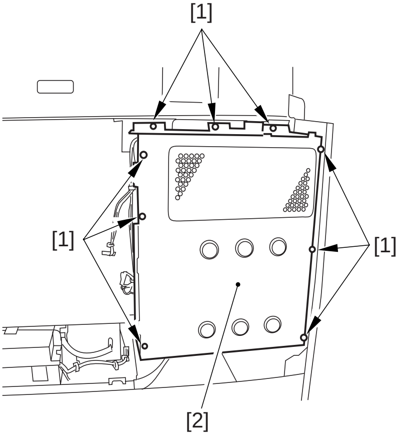
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



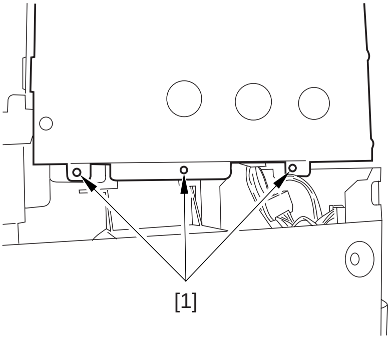
F-4-92

4.7.7.4 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



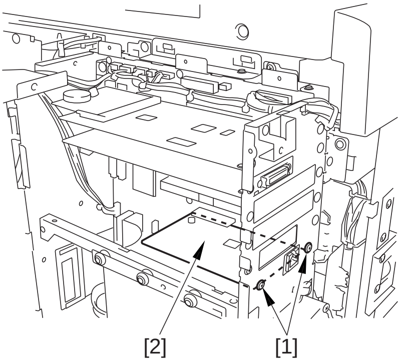
F-4-93



F-4-94

4.7.7.5 Removing the Ethernet Board

1) Remove the 2 screws [1], and detach the Ethernet board [2].



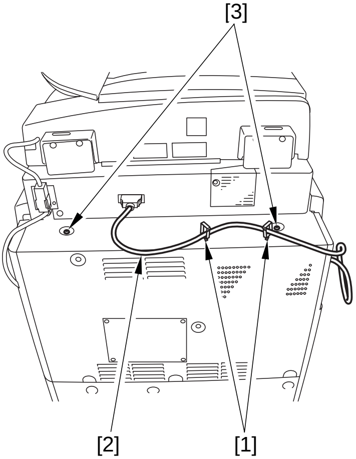
F-4-95

4.7.8 HDD

4.7.8.1 Removing the Rear Cover (upper)

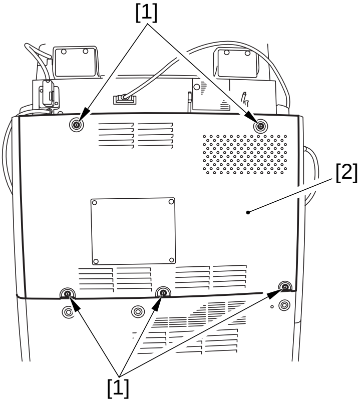
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-4-96

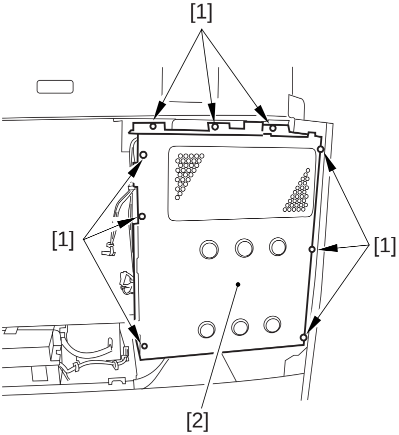
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



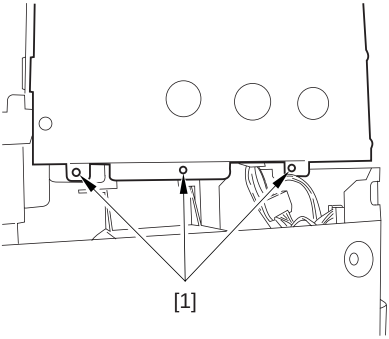
F-4-97

4.7.8.2 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



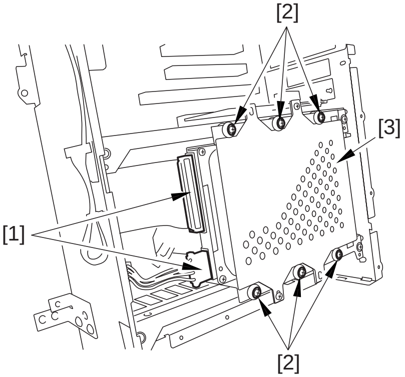
F-4-98



F-4-99

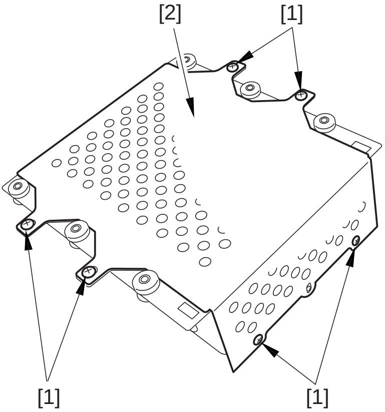
4.7.8.3 Removing the HDD

1) Disconnect the 2 connectors [1], and remove heater 6 screws [2]; then, detach the HDD box [3].



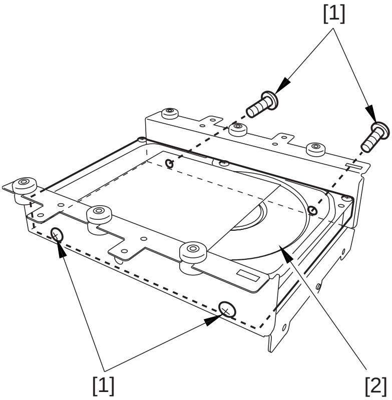
F-4-100

2) Remove the 6 screws [1], and detach the HD cover [2].



F-4-101

3) Remove the 4 screws [1], and detach the HDD [2].



F-4-102

4.7.8.4 After Replacing the HDD

A. If NetSpot Accountant (NSA) Is Not Used

1) Format the HDD.

Start up the machine in safe mode (i.e., turn on the main power while holding down the 2 and 8 keys).

Using the SST's HD formatting function, execute formatting of all partitions. (For details, see the instructions on how to upgrade the machine.)

2) Download the system software.

Using the SST, download the system, language, and RUI files.

It may take about 5 min for the machine to start up after a download session.

B. If a Card Reader and NetSpot Accountant (NSA) Are Used

A card ID used by the NSA exists on the HDD. If you have replaced the HDD, you must also download the card data used by the NSA once again; otherwise, you will not be able to make use of statistical management functions of the NSA.

You will first have to format the HDD and download the system software as for A above; thereafter, you need to perform additional steps:

1) Format the HDD.

2) Download the system software.

3) Make the following selections:

COPIER>FUNCTION>INSTALL>CARD

4) Enter a card number.

Enter the number of the first card of those to be used for group control, and press the OK key. (For instance, if the group will be using numbers between 1 through 1000, enter '1'.)

5) Turn off and then on the machine's main power.

6) Make a check.

Make the following selections in Additional Function: system control settings>group ID control>count control; then, check to make sure the following IDs are made ready: ID00000001 through ID00001000.

7) Set the appropriate addresses.

Make the following selections in Additional Function: system control settings>network settings>TCP/IP settings>IP address. Then, set the following addresses: IP address, gateway address, subnet mask.

8) Enter a number.

Make the following selections in Additional Function, and enter a number: system administrator information settings>system control group ID/system control ID No.

9) Turn off and then on the machine's main power.

⚠Unless you set up the system control ID and the system control ID No., you will not be able to register a card to the machine while using NSA.

10) Download the card ID.

Keep the machine in a standby state, and download the card ID through the NSA.

11) Check the count control.

Make the following selections in Additional Function to bring up the Count Control screen: system control settings>group ID control; then, check to see that only the ID data you have downloaded are indicated.

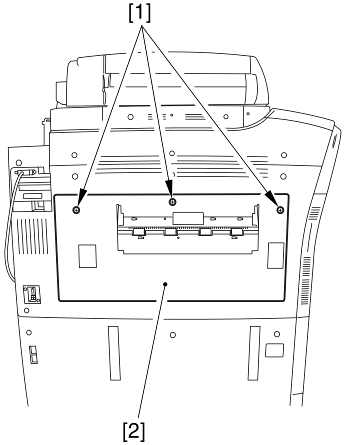
12) Check to see that the operation is normal.

Using a user card that has been registered to the NSA, make copies; then, check that the number of copies you have made are associated with the card you have used in the machine.

4.7.9 Controller Fan

4.7.9.1 Removing the Delivery Cover

1) Remove the 3 screws [1], and detach the delivery cover [2].

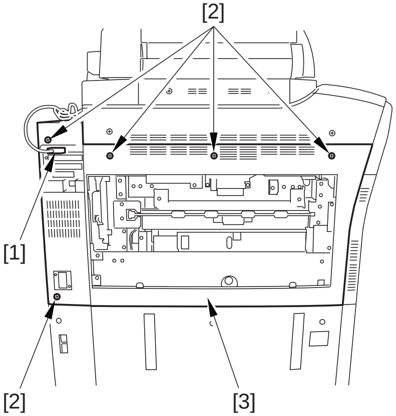


F-4-103

4.7.9.2 Removing the Left Cover (middle)

1) Disconnect the connector [1].

2) Remove the 5 screws [2], and detach the left cover (middle) [3].

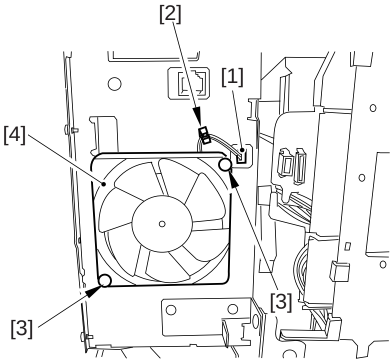


F-4-104

4.7.9.3 Removing the Controller Fan

1) Disconnect the connector [1], and open the cable guide [2].

2) Remove where 2 screws [3], and detach the controller fan [4].



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Chapter 5

Original Exposure System

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5.1 Construction

5.1.1 Specifications, Control Mechanisms, and Functions

The following shows major specifications, control mechanisms, and functions of the machine's original exposure system:

T-5-1

Item	Description
Scanning lamp	xenon lamp (white)
scanning	book mode: by moving optical unit
	ADF mode: by moving original
Reading resolution	600 (main scanning) x 600 (sub scanning) dpi
Scanner position detection	scanner HP sensor (PS501)
scanner HP Lens	single-focus, fixed
Magnification	copyboard mode: 100%
	ADF mode: 100%
	main scanning direction: image processing by controller block
	sub scanning direction: image processing by controller block
Scanner drive control	No. 1/No. 2 mirror base: by pulse motor (M501)
Original scanning lamp	[1]activation control by inverter circuit
Activation control	[2]error detection control

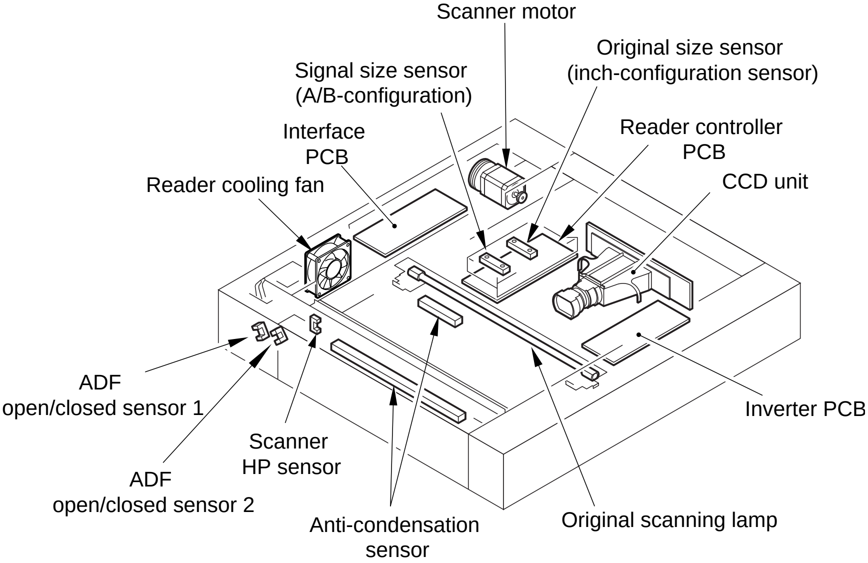
Item	Description
Original size detection	[1]book mode
	sub scanning direction: by reflection type sensor
	main scanning direction: by CCD
	[2]w/ ADF in use
	main scanning direction: by slide guide in ADF
	sub scanning direction: by photo sensor in ADF

5.1.2 Major Components

The original exposure system consists of the following major components:

T-5-2

Item	Notation	Description
Scanning lamp	LA1	xenon lamp: 77.500 lx
Scanner motor	M501	2-phase pulse motor: pulse control
Reader Cooling fan	FM13	cools the reader assembly.
Scanner HP sensor	PS501	detects the home position of the scanner.
ADF open/closed sensor 1	PS502	detects the sate (open/closed) of the ADF using the ADF open/closed sensor (5 deg).
ADF open/closed sensor 2	PS503	detects the size with the ADF at 25 deg or less.
Original size sensor (AB-configuration)	---	detects the size in sub scanning direction (AB-configuration)
Original size sensor (inch-configuration)	---	detects the size in sub scanning direction (inch-configuration).
Mirror	---	No. 1, No. 2, No. 3, mirror


Scanner motor
Original size sensor
(inch-configuration sensor)
Signal size sensor
(A/B-configuration)
Interface
PCB
Reader controller
PCB
CCD unit
Reader cooling fan
ADF
open/closed sensor 1
Inverter PCB
Scanner
HP sensor
ADF
open/closed sensor 2
Anti-condensation
sensor
Original scanning lamp

F-5-1

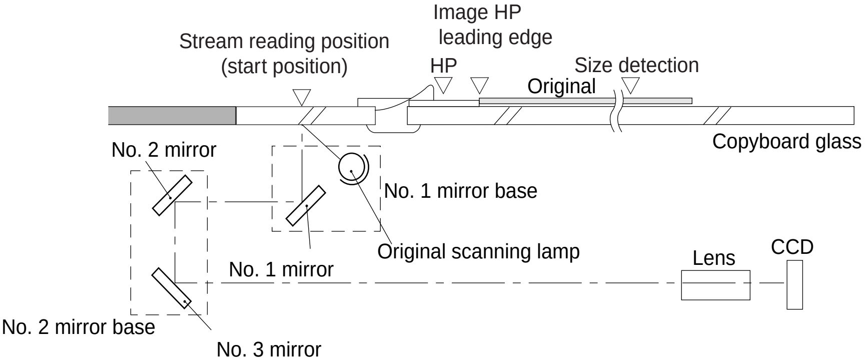
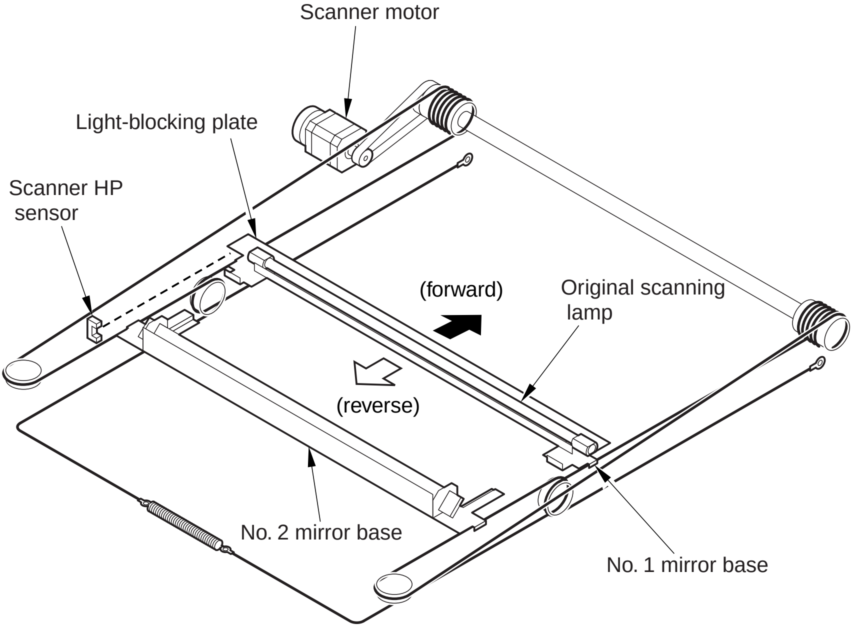


Image HP
leading edge
Stream reading position
(start position)
HP
Size detection
Original
Copyboard glass
No. 2 mirror
No. 1 mirror base
Original scanning lamp
CCD
Lens
No. 1 mirror
No. 2 mirror base
No. 3 mirror

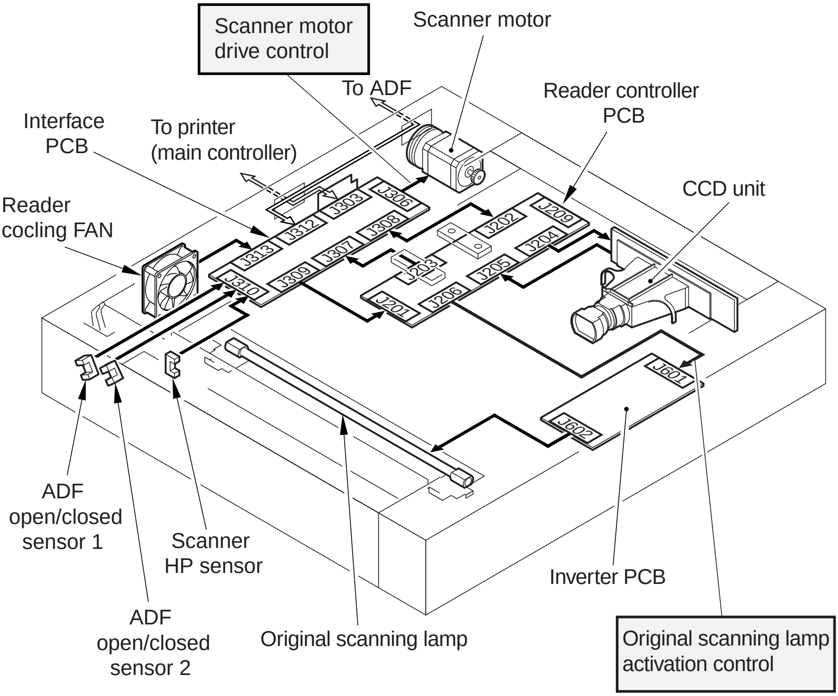
F-5-2


Scanner motor
Light-blocking plate
Scanner HP sensor
(forward)
Original scanning lamp
(reverse)
No. 2 mirror base
No. 1 mirror base

F-5-3

5.1.3 Construction of the Control System

The following shows the construction of the control system of the original exposure system:


Scanner motor drive control
Scanner motor
To ADF
Reader controller PCB
Interface PCB
To printer (main controller)
CCD unit
Reader cocling FAN
J306
J303
J312
J313
J308
J307
J309
J310
J209
J202
J204
J203
J205
J206
J201
J601
J602
ADF open/closed sensor 1
Scanner HP sensor
Inverter PCB
ADF open/closed sensor 2
Original scanning lamp
Original scanning lamp activation control

F-5-4

5.1.4 Reader Controller PCB

The following shows the functional construction of the reader controller PCB:

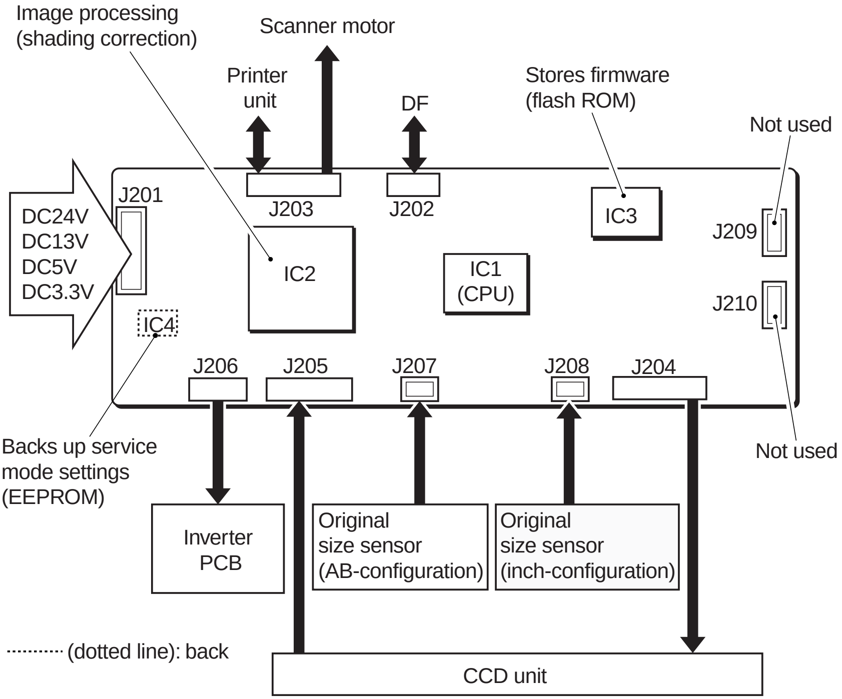


Image processing
(shading correction)
Scanner motor
Printer
unit
DF
Stores firmware
(flash ROM)
Not used
DC24V
DC13V
DC5V
DC3.3V
J201
J203
J202
IC3
J209
IC2
IC1
(CPU)
J210
IC4
J206
J205
J207
J208
J204
Not used
Backs up service
mode settings
(EEPROM)
Inverter
PCB
Original
size sensor
(AB-configuration)
Original
size sensor
(inch-configuration)
.... (dotted line): back
CCD unit

F-5-5

T-5-3

Jack No	Description
J201	used for the power from the machine (printer unit).
J202	used for the power from the machine (printer unit).
J203	used for communications with the printer unit (connection with the scanner motor). used for communications with the ADF (image signal input).
J204	used for connection with the CCD unit.
J205	used for communication with the CCD unit.

Jack No	Description
J206	used for connection with the inverter PCB.
J207	used for connection with the original size sensor (AB-configuration).
J208	used for connection with the original size sensor (inch-configuration).
J209	not used
J210	not used.

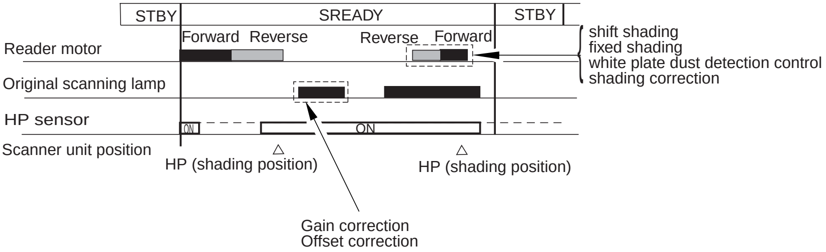
T-5-4

IC	Description
IC1	CPU (holds boot program)
IC2	ASCI (built-in RAM)
IC3	flash RAM (stores firmware)
IC4	EEPROM (backs up service mode settings)

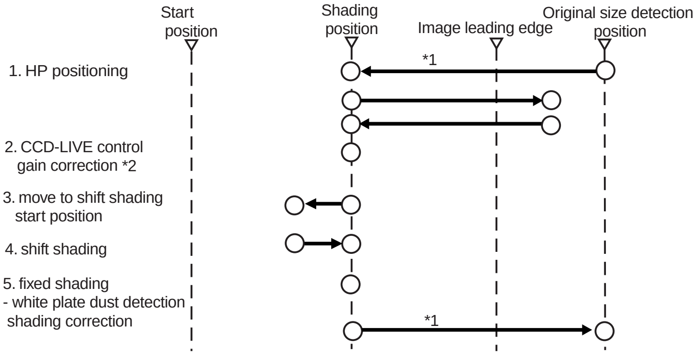
5.2 Basic Sequence

5.2.1 Basic Sequence of Operation at Power-On

Basic Sequence of Operation at Power-On


STBY
SREADY
STBY
Reader motor
Forward
Reverse
Reverse
Forward
Original scanning lamp
HP sensor
ON
ON
Scanner unit position
HP (shading position)
HP (shading position)
Gain correction
Offset correction
shift shading
fixed shading
white plate dust detection control
shading correction

F-5-6

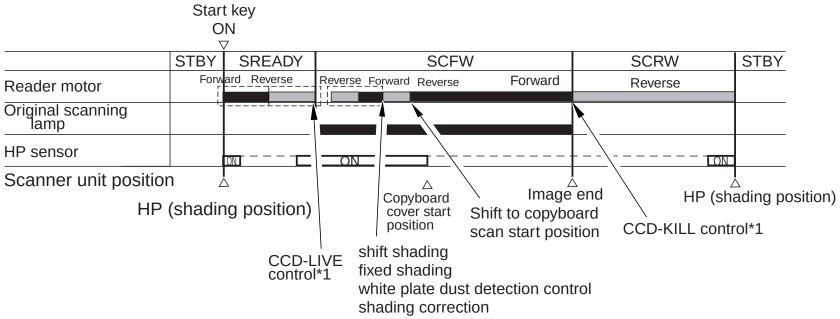

Start position
Shading position
Image leading edge
Original size detection position
1. HP positioning
*1
2. CCD-LIVE control
gain correction *2
3. move to shift shading
start position
4. shift shading
5. fixed shading
- white plate dust detection
shading correction
*1

*1: shifts only if the copyboard (ADF) is open.
*2: controls by turning on/off the power of the CCD and the circuitry around it for power saving and for protection against overheating.

F-5-7

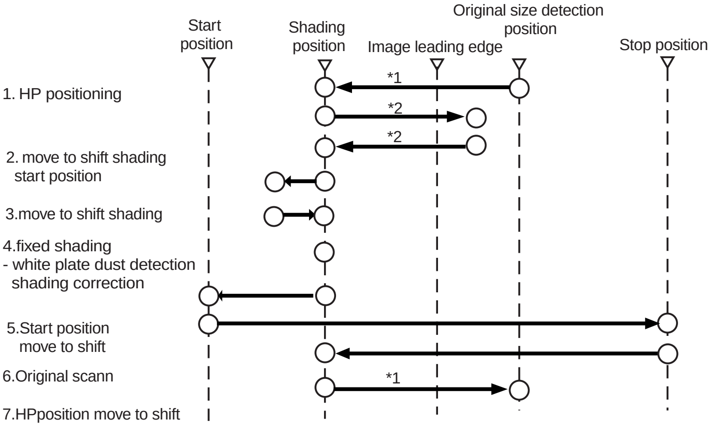
5.2.2 Basic Sequence of Operation in Response to a Press on the Start Key

Basic Sequence of Operation in Response to a Press on the Start Key (book mode; 1 original)


Start key
ON
STBY
SREADY
SCFW
SCRW
STBY
Reader motor
Forward
Reverse
Reverse
Forward
Reverse
Forward
Reverse
Original scanning lamp
HP sensor
ON
ON
ON
Scanner unit position
HP (shading position)
Copyboard cover start position
Image end
Shift to copyboard scan start position
HP (shading position)
CCD-KILL control*1
CCD-LIVE control*1
shift shading
fixed shading
white plate dust detection control
shading correction

*1: controls by turning on/off the power of the CCD and the circuitry around it for power saving and for protection against overheating.

F-5-8

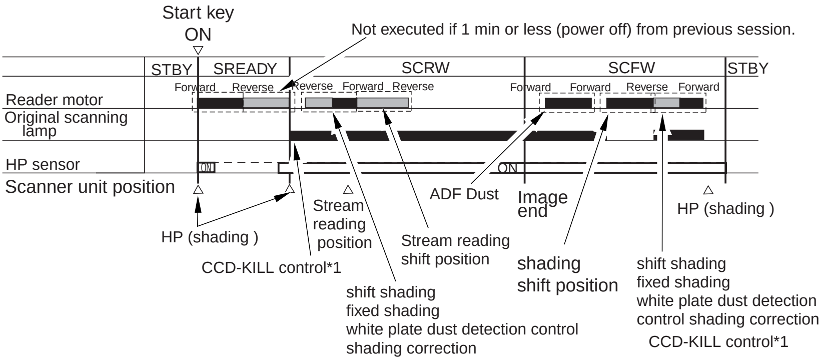

Start position
Shading position
Image leading edge
Original size detection position
Stop position
1. HP positioning
*1
*2
*2
2. move to shift shading start position
3.move to shift shading
4.fixed shading
- white plate dust detection
shading correction
5.Start position move to shift
6.Original scann
*1
7.HPposition move to shift

*1: shifts only if the copyboard cover (ADF) is open.

*2: executed only if 1 min or more (power off) has passed from the previous session.

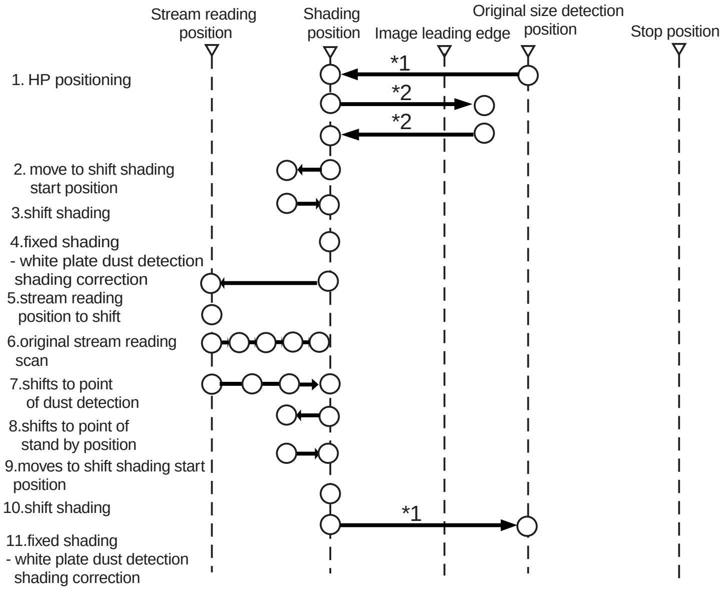
F-5-9

Basic Sequence of Operation in Response to a Press on the Start Key (ADF mode; 1 original)


Start key
ON
Not executed if 1 min or less (power off) from previous session.
STBY
SREADY
SCRW
SCFW
STBY
Forward
Reverse
Reverse
Forward
Reverse
Forward
Forward
Reverse
Forward
Reader motor
Original scanning lamp
HP sensor
ON
ON
Scanner unit position
Stream reading position
ADF Dust
Image end
HP (shading)
HP (shading)
Stream reading shift position
shading shift position
CCD-KILL control*1
shift shading
fixed shading
white plate dust detection control
shading correction
shift shading
fixed shading
white plate dust detection
control shading correction
CCD-KILL control*1

*1: controls by turning on/off the power of the CCD and the circuitry around it for power saving and for protection against overheating.

F-5-10


Stream reading position
Shading position
Image leading edge
Original size detection position
Stop position
1. HP positioning
*1
*2
*2
2. move to shift shading start position
3.shift shading
4.fixed shading
- white plate dust detection
shading correction
5.stream reading position to shift
6.original stream reading scan
7.shifts to point of dust detection
8.shifts to point of stand by position
9.moves to shift shading start position
10.shift shading
*1
11.fixed shading
- white plate dust detection
shading correction

*1: shifts only if the copyboard cover (ADF) is open

*2: executed only if 1 min (power ON) or more has passed from the previous session.

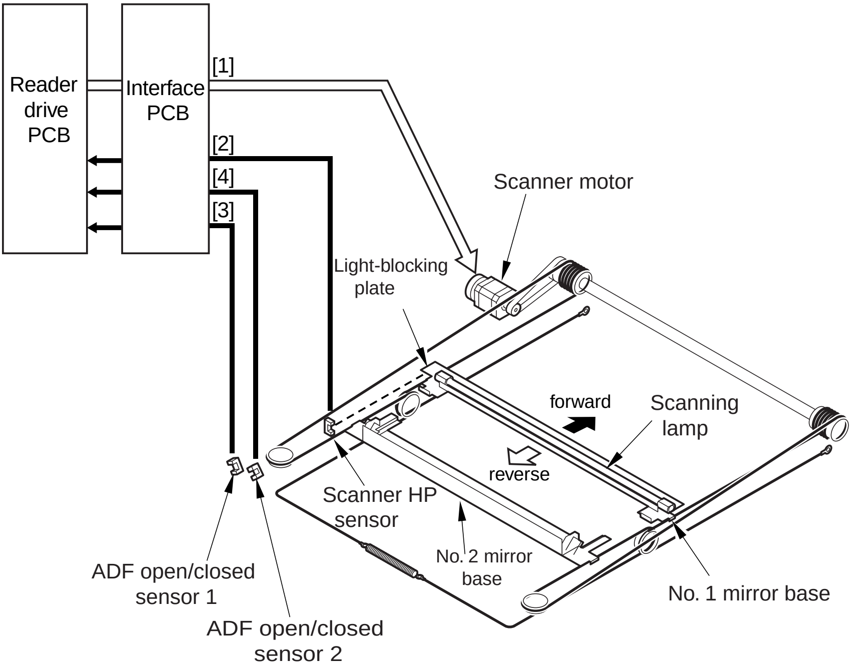
F-5-11

5.3 Various Control

5.3.1 Controlling the Scanner Drive System

5.3.1.1 Overview

The following shows the arrangement of the components associated with the drive of the scanner:


Reader drive PCB
Interface PCB
[1]
[2]
[4]
[3]
Scanner motor
Light-blocking plate
forward
Scanning lamp
reverse
Scanner HP sensor
No. 2 mirror base
No. 1 mirror base
ADF open/closed sensor 1
ADF open/closed sensor 2

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[1] Scanner Motor M501 Drive Signal

controls the activation/deactivation of the motor and the direction and speed of the motor.

[2] Scanner HP Sensor PS501 Detection Signal

used in reference to the detection of the No. 1 mirror base at its home position.

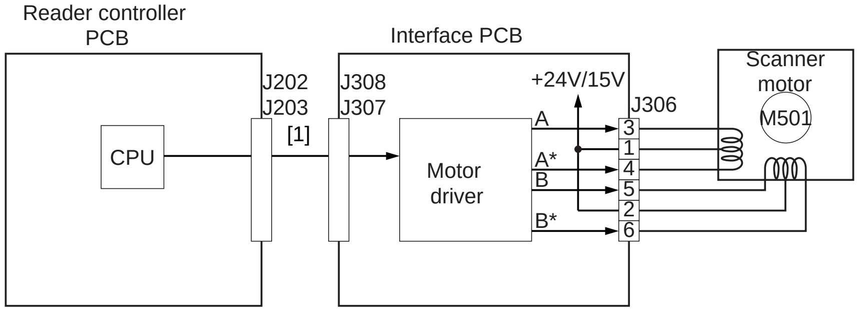
[3] ADF Open/Closed Sensor 1 PS502 Detection Signal

used in reference to the detection of the state (open/closed) of the ADF.

[4] ADF Open/Closed Sensor 2 PS503 Detection Signal
used in reference to the detection of the state (open/closed) of the ADF.

5.3.1.2 Controlling the Scanner Motor

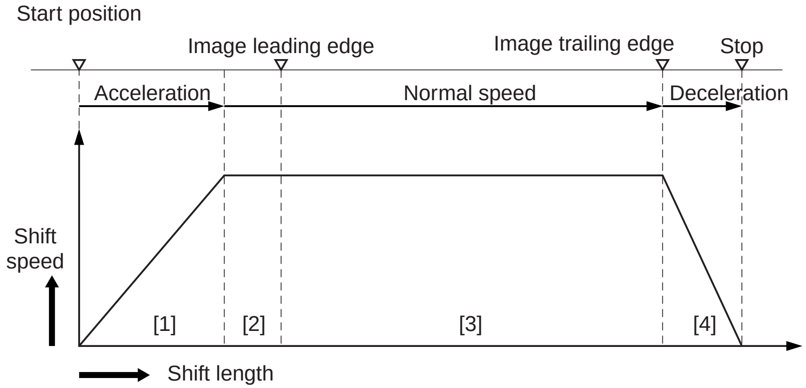
The following shows the construction of the mechanisms used to control the scanner motor. The motor driver on the interface PCB controls the rotation (activation/deactivation) of the scanner motor and its direction and speed of rotation according to the signals from the CPU.


Reader controller PCB
Interface PCB
Scanner motor
J202
J203
J308
J307
+24V/15V
J306
M501
CPU
[1]
A
Motor driver
A*
B
B*
3
1
4
5
2
6

1 Scanner motor control signal

F-5-13

a. Moving the Scanner in Reverse After an Image Scan
After an image scan, the No. 1 mirror base is moved in reverse to shading position at 234 mm/sec regardless of the selected color mode.
b. Moving the Scanner Forward for an Image Scan
When making an image scan, the No. 1 mirror base unit is moved by controlling the motor as follows:



1. Acceleration Zone: accelerates to suit the selected mode
2. Approach Zone: moves for speed stabilization.
3. Image Read Zone: reads the image at a specific speed.
(if black-and-white/SEND mode, twice as fast as in full-color mode)
4. Deceleration Zone: past the image trailing edge, immediately decelerates and stops.

F-5-14

The machine uses the following scanning speeds to suit different modes;

T-5-5

Function	Mode	Scanning speed
Copier	black-and-white	234 mm/sec
	full-color	234 mm/sec
SEND	black-and-white	468 mm/sec
	full-color	234 mm/sec

5.3.2 Enlargement/Reduction

5.3.2.1 Changing the Magnification in Main Scanning Direction

For main scanning direction in both copyboard and ADF modes, the image is read at 100%, and the magnification is varied by the main controller block.

5.3.2.2 Changing the Magnification in Sub Scanning Direction

For sub scanning direction in both copyboard and ADF modes, the image is read at 100%, and the magnification is changed by the main controller block.

In SEND mode, the reading size is switched between 100% and 50% depending on the selected resolution.

5.3.3 Controlling the Scanning Lamp

5.3.3.1 Overview

The scanning lamp is controlled for the following, with associated control mechanisms operating as follows:

1)Turning On and Off the Scanning Lamp

The scanning lamp is turned on or off by the drive signal (XE-ON) generated by the CPU of the reader controller PCB. When the signal is generated, the inverter PCB generates high-frequency high voltage using the activation control circuit from the drive voltage (+24V) supplied by the reader controller PCB, thus turning on the scanning lamp.

2)Detection Error Activation

The machine detects a fault in the intensity of the lamp as an activation error caused by a fault in the intensity of the lamp at time of initial activation (shading correction).

MEMO:

E225

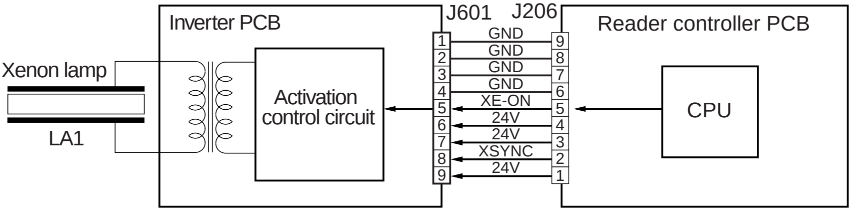
-the reader controller PCB is faulty

-the inverter PCB is faulty

-the scanning lamp (xenon tube) is faulty

-CCD is faulty

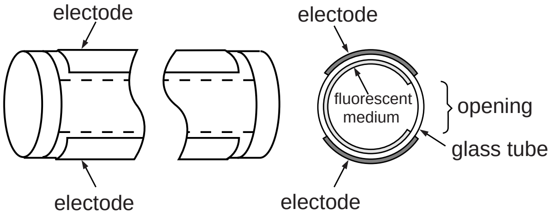
-flexible cable has poor contact


Inverter PCB
Xenon lamp
LA1
Activation control circuit
J601
J206
1
2
3
4
5
6
7
8
9
GND
GND
GND
GND
XE-ON
24V
24V
XSYNC
24V
9
8
7
6
5
4
3
2
1
Reader controller PCB
CPU

F-5-15

5.3.3.2 Scanning Lamp

The machine's scanning lamp is a xenon lamp, which uses xenon gas sealed inside. On the outside of the glass tube, 2 electrodes are arranged in parallel with the tube; the inside of the tube, on the other hand, is coated with fluorescent material. When a high-frequency high voltage is applied to the electrodes, the gas inside the tube starts to discharge, causing the fluorescent material to emit light.



F-5-16

5.3.3.3 Turning On and Off the Scanning Lamp

The scanning lamp is turned on and off by the drive signal (LAMP_ON) generated by the CPU of the reader control PCB. When the signal is generated, the inverter PCB generates high-frequency high voltage in the activation control circuit using the drive voltage (+24 V) supplied by the reader controller PCB to turn on the xenon lamp.

5.3.4 Detecting the Size of Originals

5.3.4.1 Identifying the Size of Originals

The machine identifies the size of an original based on combinations of measurements taken of the light reflected by specific points (using a reflection type sensor and CCD). In consideration of possible displacement of the original when the ADF is closed, the machine uses a 2-point CCD check.

Main Scanning Direction: by CCD (AB-configuration; 8-point measurement; inch-configuration, 6-point measurement)

Sub Scanning Direction: reflection type photo sensor (AB-configuration: 1-point measurement; inch-configuration: 1-point measurement)

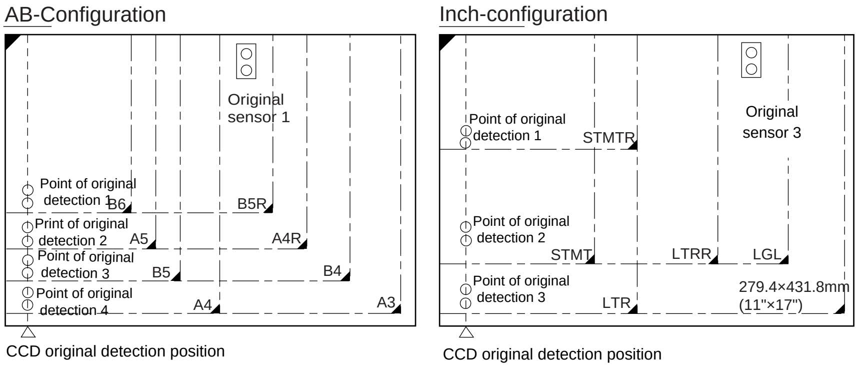
Specifically, the following takes place:

1.External Light Search (main scanning direction only)
While keeping the scanning lamp off, the machine measures the level of the CCD at specific points in main scanning direction.

2.Sensor Output Level Detection
The machine turns on the scanning lamp, and measures the sensor output at specific points. It then checks combinations of these measurement to find the size of the original.

5.3.4.2 Points of Measurement Used for Original Size Identification

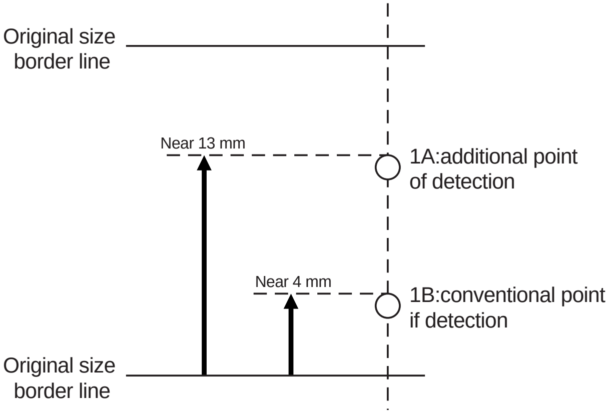
For main scanning direction, the machine moves the No. 1 mirror base to the following points in relation to the location of the original to measure the levels of the CCD. For sub scanning direction, the machine checks the states of the sensors arranged as follows:


AB-Configuration
Original sensor 1
Point of original detection 1
B6
B5R
Print of original detection 2
A5
A4R
Point of original detection 3
B5
B4
Point of original detection 4
A4
A3
CCD original detection position
Inch-configuration
Point of original detection 1
STMTR
Original sensor 3
Point of original detection 2
STMT
LTRR
LGL
Point of original detection 3
LTR
279.4×431.8mm (11"×17")
CCD original detection position

F-5-17

To raise the accuracy of original size identification (as when the original is displaced while the ADF is closed), the machine makes use of the following 2 types of mechanisms:

1.Presence/Absence of an Original at 2 Points (for each point of measurement)
For each point of measurement in main scanning direction, the machine checks the presence/absence of an original with reference to the CCD output at 2 points near the point of measurement.


Original size border line
Near 13 mm
1A:additional point of detection
Near 4 mm
1B:conventional point if detection
Original size border line

F-5-18

T-5-6

Result of measurement		Result of detection
A	B	
no	no	original absent
yes	no	original present
no	yes	original present
yes	yes	original present

Note:

1.Changes in the Signal (from ADF open to close)

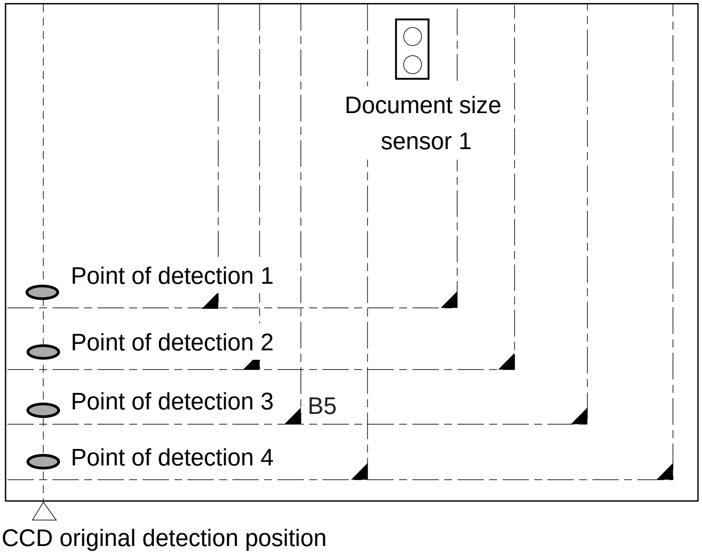
change: no

other: yes

The machine uses OR combinations for identification.

2.Priority on the Front Sensors

When checking the measurements for main scanning direction, if the absence of an original is indicated at the rear while the presence of an original is indicated at the front, the machine will give priority to the indication at the front (i.e., presence of an original).


Document size
sensor 1
Point of detection 1
Point of detection 2
Point of detection 3
B5
Point of detection 4
CCD original detection position

F-5-19

T-5-7

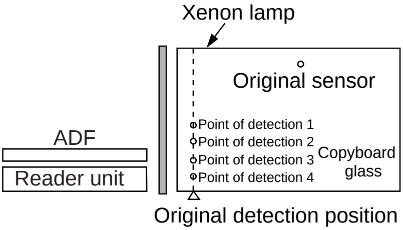
Point of detection	yes/no	Size identified
1	yes	yes
2	no	yes
3	yes	yes
4	no	no
Result		B5

Note:
Change in the Signal (ADF open to closed)
change: no
other: yes

5.3.4.3 Overview of Operation

1. Standby

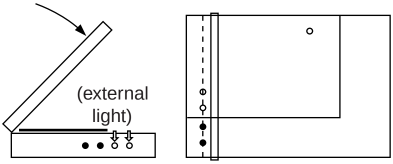
No.1 mirror base: shading position
xenon lamp: off
original sensor: off


Xenon lamp
Original sensor
ADF
Reader unit
Point of detection 1
Point of detection 2
Point of detection 3
Point of detection 4
Copyboard glass
Original detection position

F-5-20

2. ADF Opened

No.1 mirror base: shifts to original detection position
xenon tube: off
original sensor: off


(external light)

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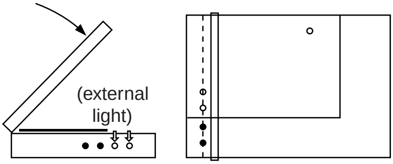
3. ADF Closed

- When the ADF is brought to 25 deg, the area covered by an original will be blocked from external light; therefore, the machine will assume the absence of an original at points that detect external light (external search).

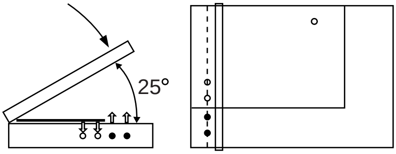
The ADF open/closed sensor 2 identifies the condition as being "closed," and the machine starts original size identification.

At this position, B5, B4, A44, and A3 are excluded from the list of possible sizes.

- The machine executes an external light search: for main scanning direction, it turns on the xenon lamp to check its light (reflected) at 4 points using the CCD; for the sub scanning direction, the machine checks the state of the original sensor.



F-5-22



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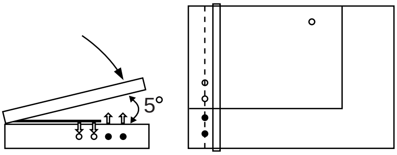
4. ADF Cover Fully Closed (5 deg or less).

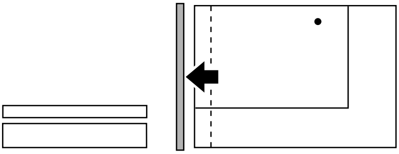
The machine checks for a change in the output levels of the sensors for 2 sec after the ADF open/closed sensor has identified the ADF as being "closed"; the machine assumes the absence of an original at points without a change.

The machine then identifies the size of the original based on the combination of changes at 5 points.



F-5-24

5. Standby (in wait for a press on the Start key)
No. 1 mirror base: at point of original detection
xenon lamp: off
original sensor: off



F-5-25

AB-Configuration

Original size	Point of CCD detection								Original sensor 1	
	1 A	1 B	2 A	2 B	3 A	3 B	4 A	4 B		
A3	○	○	○	○	○	○	○	○	○	○
B4	○	○	○	○	○	○	●	●	○	○
A4R	○	○	○	○	●	●	●	●	○	○
A4	○	○	○	○	○	○	○	○	●	●
B5	○	○	○	○	○	○	●	●	●	●
B5R	○	○	●	●	●	●	●	●	○	○
A5	○	○	○	○	●	●	●	●	●	●
B6	○	○	●	●	●	●	●	●	●	●
absent	●	●	●	●	●	●	●	●	●	●

Inch-configuration

Original size	Point of CCD detection						Original sensor 3	
	1 A	1 B	2 A	2 B	3 A	3 B		
11"x17"	○	○	○	○	○	○	○	○
LGL	○	○	○	○	●	●	○	○
LTRR	○	○	○	○	●	●	●	●
LTR	○	○	○	○	○	○	●	●
STMTR	○	○	●	●	●	●	●	●
STMT	○	○	○	○	●	●	●	●
absent	●	●	●	●	●	●	●	●

○:unchanged ●:changed

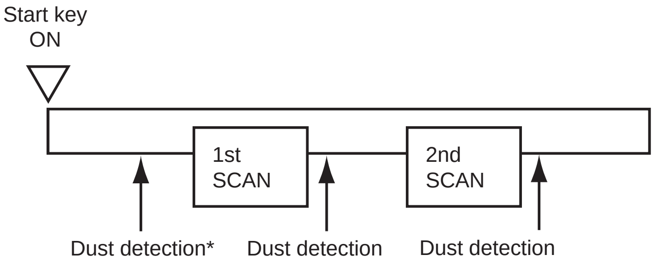
F-5-26

5.3.5 Dirt Sensor Control

5.3.5.1 Stream Reading Dust Detection Control

The machine checks the stream reading glass and the ADF platen roller for the presence/absent of dust. It then changes the point of reading or executes image correction depending on the result of detection, thereby avoiding reproduction of dust particles in its output images. The machine executes the detection mechanism only when the ADF is used:

<Timing of Detection>
<1> at the end of a job
<2>between sheets (for every sheet read)


Start key
ON
1st
SCAN
2nd
SCAN
Dust detection*
Dust detection
Dust detection

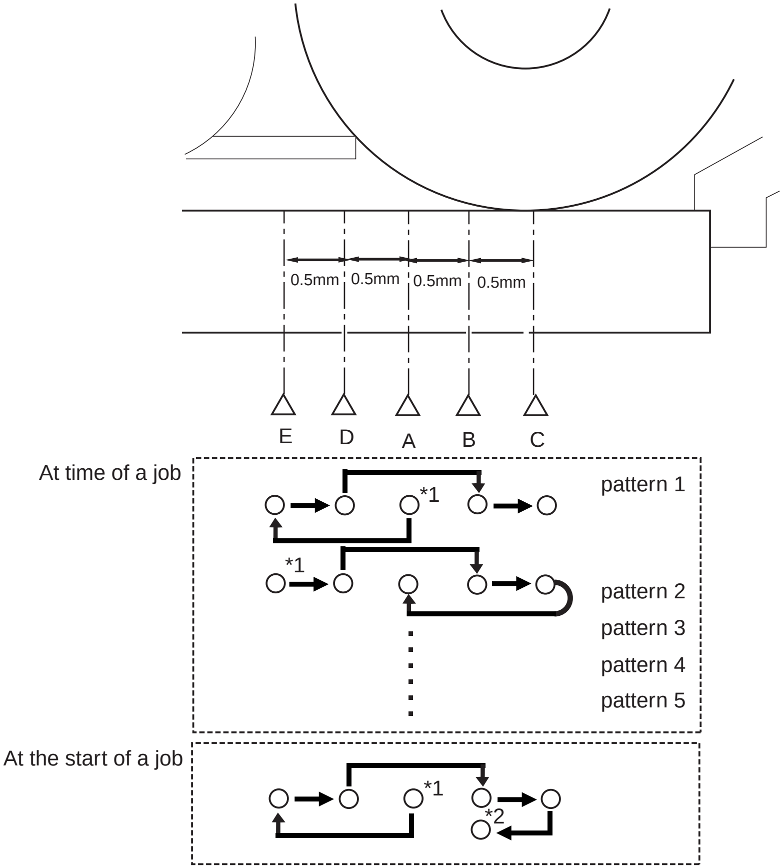
F-5-27

*Executed only if dust has been detected at all points, i.e., A, B, C, D, and E in the previous job. If so, the machine uses the point with least dust as the reading position and executes dust correction before starting reading operation.

<Particulars of Control>

- at the end of a job (makes a change to the point of stream reading dust reading position)

The machine checks the light reflected by the platen roller at the reading position to see if there is dust, moving to the next point if it finds dust (from A to B, C, D, and then to E; 5 points max.). It uses the first point that is free of dust as the reading point for the next job.


0.5mm
0.5mm
0.5mm
0.5mm
E
D
A
B
C
At time of a job
pattern 1
*1
*1
pattern 2
pattern 3
pattern 4
pattern 5
At the start of a job
*1
*2

F-5-28

If it finds dust at all 5 points (A, B, C, D, E), then it will indicate an alarm when an original is placed in the ADF, prompting the user for cleaning. To reset, press [close].

When it starts a job, it will run the session once again and use a point with no dust or little dust as the reading position.

*1: reading position at the end of the previous job.

*2: point with no dust or little dust.

T-5-8

A	reading reference position (1.0 mm to the left from the center of the platen roller)
B	1.0 mm to the left from the reference position
C	0.5 mm to the left from the reference position
D	0.5 mm to the right from the reference position
E	1.0 mm to the right from the reference position (center of the platen roller)

- between sheets (dust correction)

The machine does not move the xenon lamp for dust detection.

If dust is detected between sheets, the machine executes dust correction by making correction on the pixels on both sides of the area where dust is found.

MEMO:

COPIER>OPTION>BODY>DFDST-L1 (level 1)
(adjustment of dust detection level between sheets)
COPIER>OPTION>BODY>DFDST-L2 (level 1)
(adjustment of dust detection at job end)

5.3.5.2 White Plate Dust Detection Control

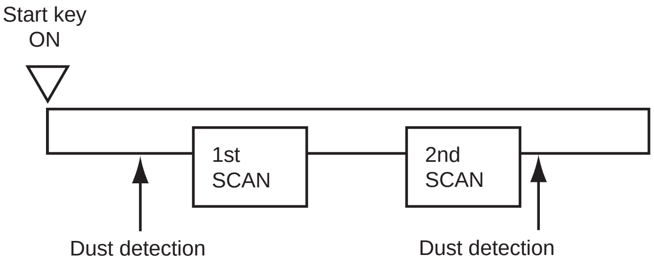
1. Overview

The machine uses a fan to cool the inside of the reader unit to prevent overheating otherwise caused by the xenon lamp in stream reading mode. The fact, however, can cause stray dust inside the reader unit to collect on the white plate, showing up as lines in output images.

<Timing of Control>

1 Before a Job
- white plate dust detection
- white plate dust correction

2 After a Job
- white plate dust detection
- white plate dust correction



F-5-29

<Particulars of Control>

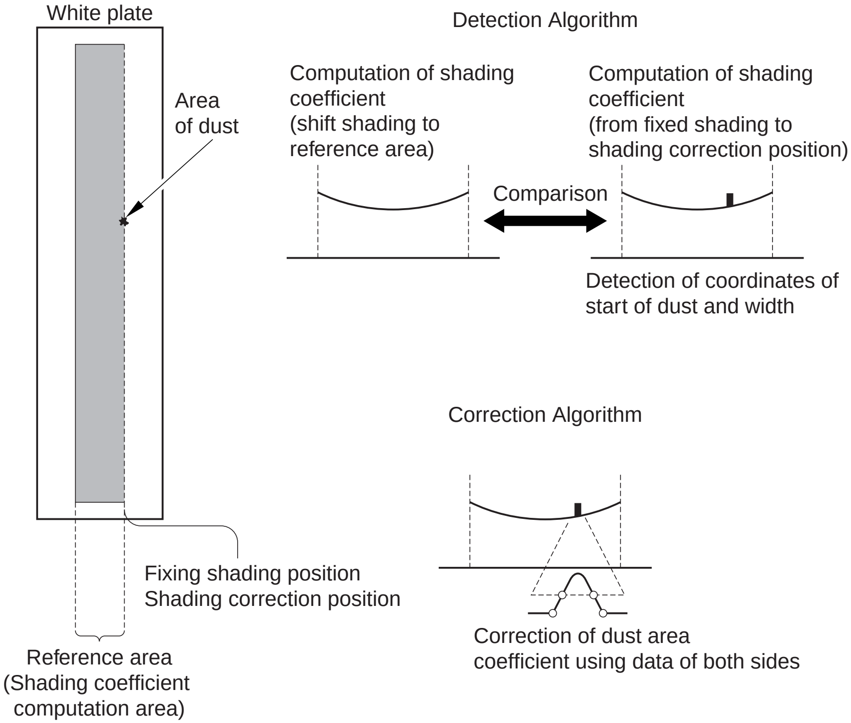
- White Plate Dust Detection

The machine compares the shading coefficient obtained from shift shading and the shading coefficient obtained from fixed shading to identify the presence/absence of dust and, if any, coordinates and width of the area.

- White Plate Dust Correction

If the machine detects dust as a result of white plate dust detection, it corrects the shading coefficient of the area using the shading coefficient of both sides so as to decrease the effects of the presence of dust. It executes shading correction using the coefficient it obtains after correction.

If the result of white plate dust detection indicates the presence of dust, the shading coefficient of the area in question will be corrected by the coefficients of its adjacent areas during shading correction with the aim of reducing the effects of the presence of dust. Thereafter, shading correction will be executed using the corrected coefficient.


White plate
Area of dust
Fixing shading position
Shading correction position
Reference area (Shading coefficient computation area)
Detection Algorithm
Computation of shading coefficient (shift shading to reference area)
Comparison
Computation of shading coefficient (from fixed shading to shading correction position)
Detection of coordinates of start of dust and width
Correction Algorithm
Correction of dust area coefficient using data of both sides

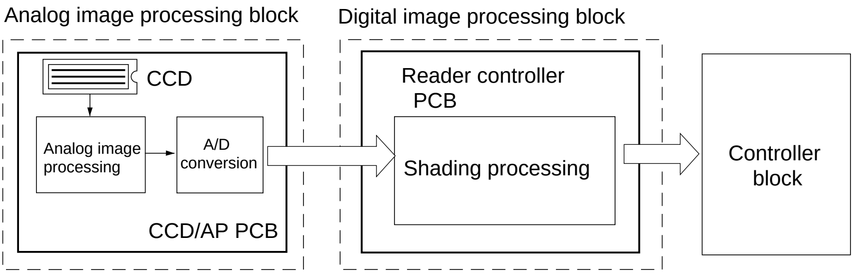
F-5-30

5.3.6 Image Processing

5.3.6.1 Overview

The following shows the major functions of the machine' s image processing system:

1. CCD (image sensor)
   number of lines: 3 (RGB, 1 line each)
   number of pixels: 7350
   size of pixel: 9.3 x 9.3 ym
2. Shading Correction shading adjustment: in service mode
   shading correction: executed for every copy


Analog image processing block
Digital image processing block
CCD
Analog image processing
A/D conversion
CCD/AP PCB
Reader controller PCB
Shading processing
Controller block

F-5-31

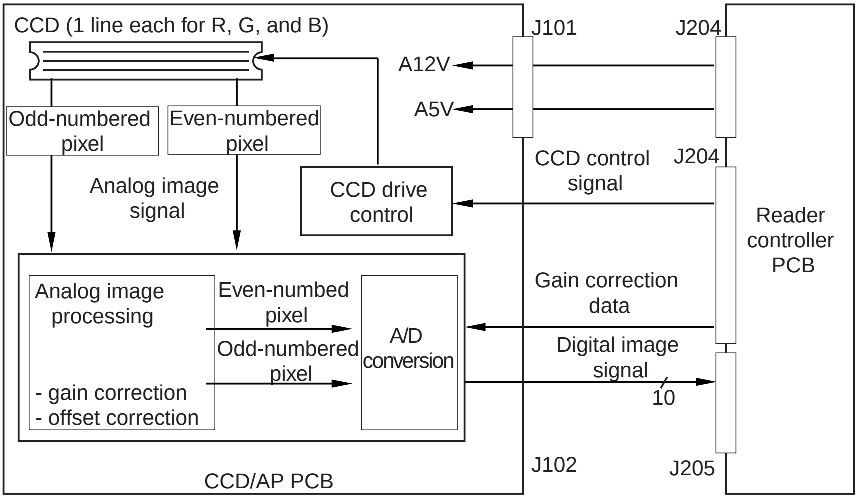
The following shows the functions of the PCBs associated with the image processing system:

CCD/AP PCB: CCD drive, analog image processing, A/D conversion

reader controller PCB: shading correction

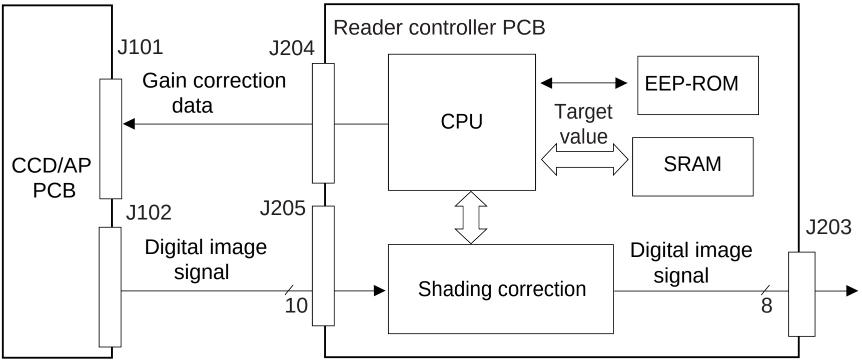
The machine performs image processing for every RGB line using the reader controller PCB, and the major functions involved are as follows:

1. Analog Image processing
- CCD drive
- CCD output gain correction, offset correction
- CCD output A/D conversion


CCD (1 line each for R, G, and B)
Odd-numbered pixel
Even-numbered pixel
Analog image signal
CCD drive control
A12V
A5V
J101
J204
J204
CCD control signal
Reader controller PCB
Analog image processing
- gain correction
- offset correction
Even-numbed pixel
Odd-numbered pixel
A/D conversion
Gain correction data
Digital image signal
10
J102
J205
CCD/AP PCB

F-5-32

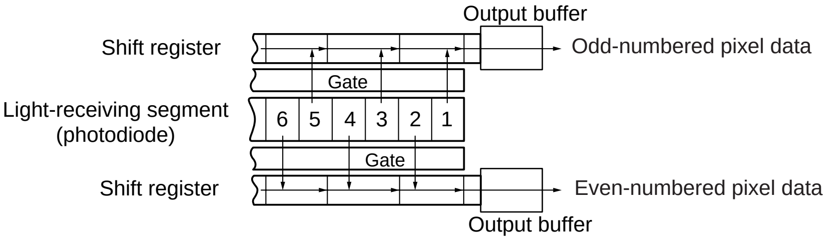
2. Digital Image Processing


Reader controller PCB
J101
J204
Gain correction data
CPU
EEP-ROM
Target value
SRAM
CCD/AP PCB
J102
J205
J203
Digital image signal
10
Shading correction
Digital image signal
8

F-5-33

5.3.6.2 CCD Drive

The machine's CCD is a linear image sensor consisting of 3 lines (R, G, B, 1 line each), each line composed of 7350 photo cells. The signal that has been put through photo-conversion in the light-receiving segment is divided into 2 analog signals of 2 channels for output: even-numbered pixels (EVEN) and odd-numbered pixels (ODD).


Output buffer
Shift register
Odd-numbered pixel data
Gate
Light-receiving segment (photodiode)
6
5
4
3
2
1
Gate
Shift register
Even-numbered pixel data
Output buffer

F-5-34

5.3.6.3 CCD Gain Correction, Offset Correction

The analog video signal from the CCD is processed so that the rate of amplification is even (gain correction); the output in the absence of incident light is also processed for a specific level (offset correction).

5.3.6.4 CCD Output A/D Conversion

The odd-numbered and even-numbered pixel analog video signals after the foregoing correction are then converted into 10-bit digital signals by the A/D converter according to their pixel voltage levels.

5.3.6.5 Outline of Shading Correction

The output of the CCD may not always be uniform because of the following reasons even when the density of the original in question is uniform:

1. variation in the sensitivity among individual pixels of the CCD.
2. difference in the level of transmission between the center and the edge of the lens.
3. difference in the intensity of light between the middle and the edges of the scanning lamp.
4. deterioration of the scanning lamp

The machine executes shading correction to even out the output of the CCD.

The machine executes either of the following 2 shading mechanisms: shading correction it carries out for every copy and shading adjustment for which the target value is set in service mode.

5.3.6.6 Shading Adjustment

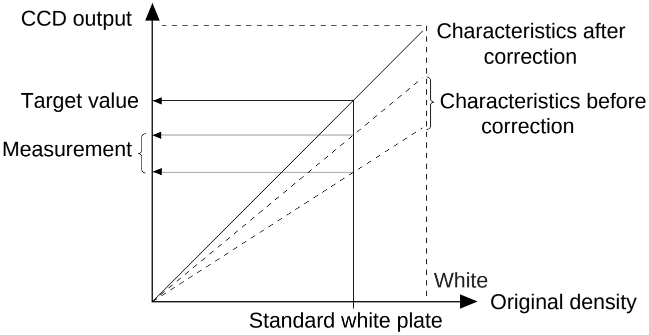
The machine executes shading adjustment in response to a command made in service mode. The machine measures the density of blank white paper and that of the white plate to obtain density data; it then computes the data to produce the target value for use at time of shading correction.

5.3.6.7 Shading Correction

The machine executes shading correction each time it scans an original.

The machine directs the light from the scanning lamp against the standard white plate, and converts the reflected light into a digital signal by the analog image processing block on the CCD/AP PCB. The result (i.e., a digital signal representing the intensity of the reflected light) is sent to the shading correction circuit of the reader controller PCB as a shading coefficient. The shading correction circuit in turn compares the coefficient against the target value it holds, and offers the difference as the shading correction value.

The machine uses the shading correction value to correct the variation that may exist among the individual pixels of the CCD, thereby keeping the image density to a specific level at all times.



F-5-35

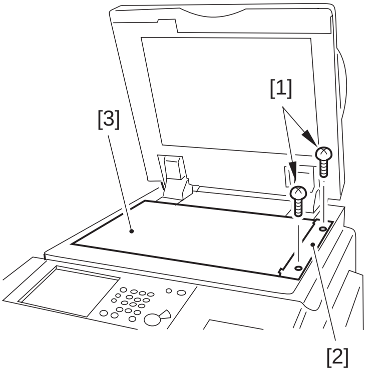
5.4 Parts Replacement Procedure

5.4.1 Copyboard Glass

5.4.1.1 Removing Copyboard Glass

1) Open the ADF.

2) Remove the 2 screws [1], and detach the right glass retainer [2]; then, detach the copyboard glass [3].



F-5-36

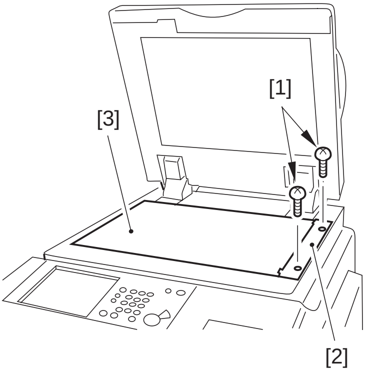
⚠ When detaching the copyboard glass, take care not to touch the white plate attached to its back. (Soiling can cause lines in the image). If soiled, clean it using lint-free paper moistened with alcohol.)

5.4.2 Exposure Lamp

5.4.2.1 Removing the Copyboard Glass

1) Open the ADF.

2) Remove the 2 screws [1], and detach the right glass retainer [2]; then, detach the copyboard glass [3].

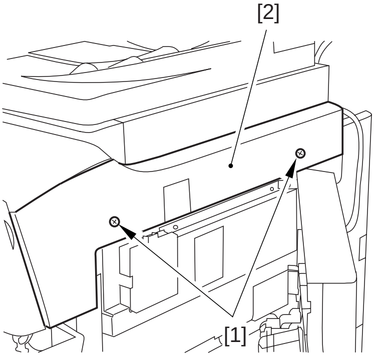


F-5-37

⚠ When detaching the copyboard glass, take care not to touch the white plate attached to its back. (Soiling can cause lines in the image). If soiled, clean it using lint-free paper moistened with alcohol.)

5.4.2.2 Removing the Right Cover (upper)

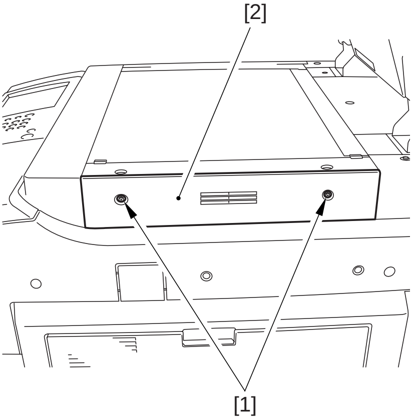
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-5-38

5.4.2.3 Removing the Reader Right Cover

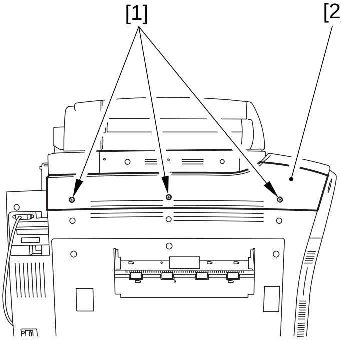
1) Remove the 2 screws [1], and detach the reader right cover [2].



F-5-39

5.4.2.4 Removing the Left Cover (upper)

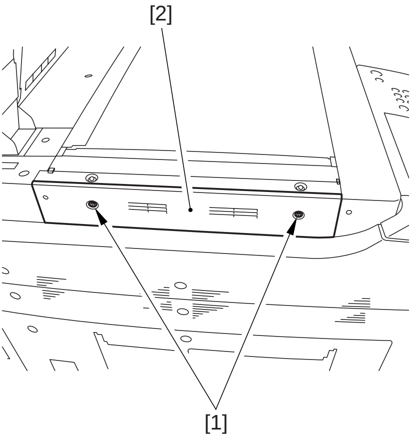
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-5-40

5.4.2.5 Removing the Reader Left Cover

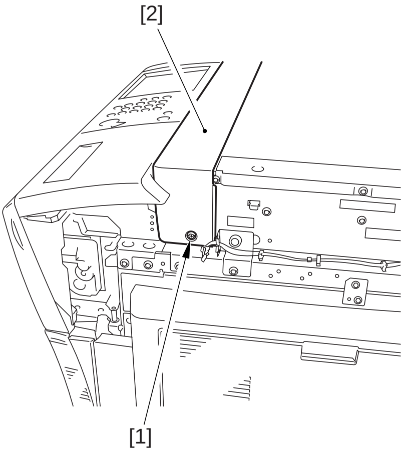
1) Remove the 2 screws [1], and detach the reader left cover [2].



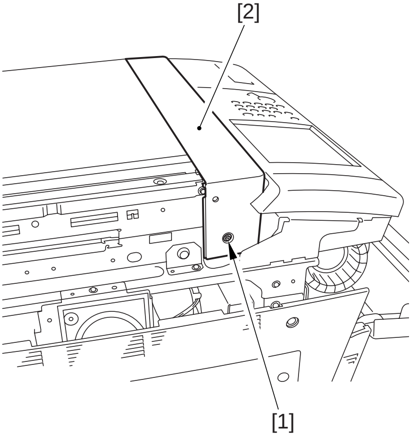
F-5-41

5.4.2.6 Removing the Reader Front Cover

1) Remove the screw [2] (1 pc. each) from the left and right of the reader front cover [1].

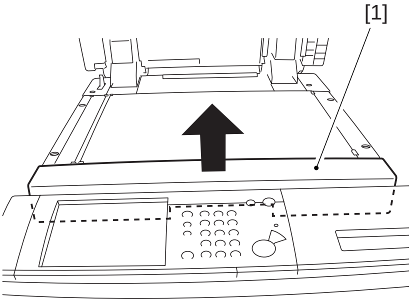


F-5-42



F-5-43

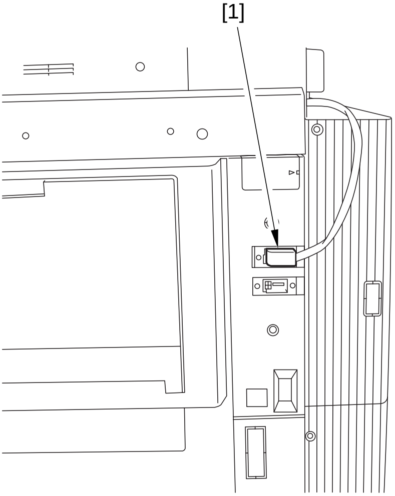
2) Detach the reader front cover [1] in upward direction [1].



F-5-44

5.4.2.7 Removing the Reader Rear Cover

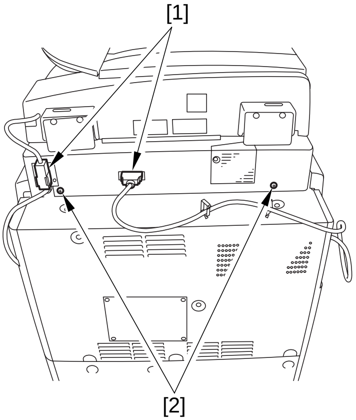
1) Disconnect the connector [1].



F-5-45

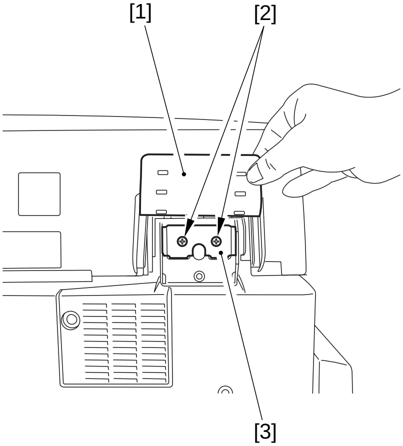
2) Disconnect the 2 connectors [1].

3) Remove the 2 screws [2].

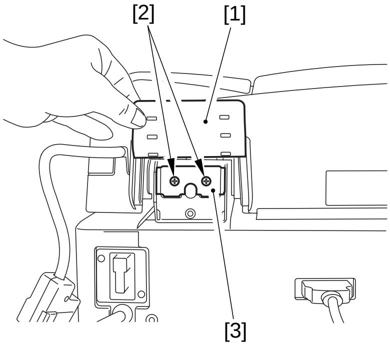


F-5-46

4) Bend up the edge of the rubber cover [1], and remove the screws (2 pc. each) [2]; then, detach the angle guide plate.



F-5-47

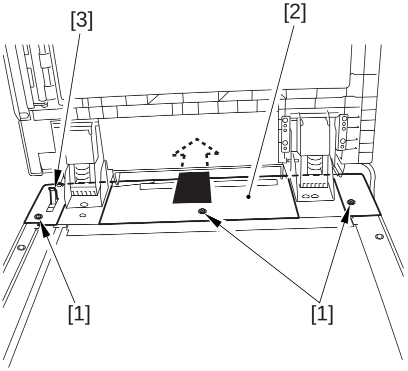


F-5-48

5) Open the ADF fully.

6) Remove the 3 screws [1], and slide the reader rear cover [2] toward the rear to detach.

⚠ Take care not to damage the ADF open/closed sensor arm [3].

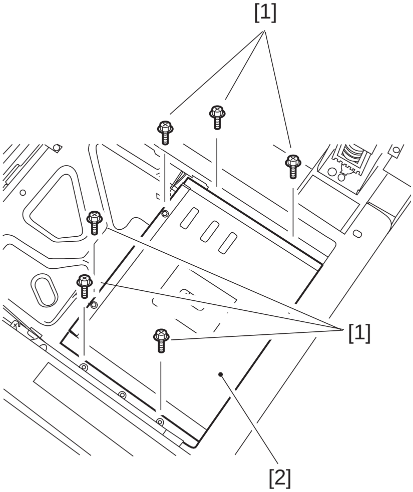


F-5-49

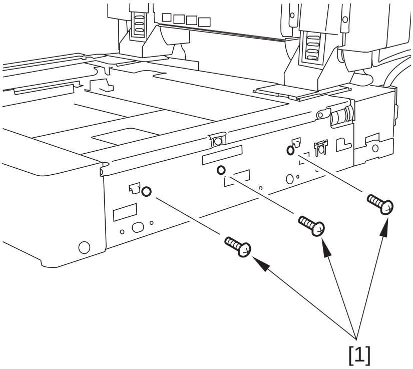
5.4.2.8 Removing the CCD Unit Cover

1) Remove the 9 screws [1], and detach the

CCD unit cover [2].



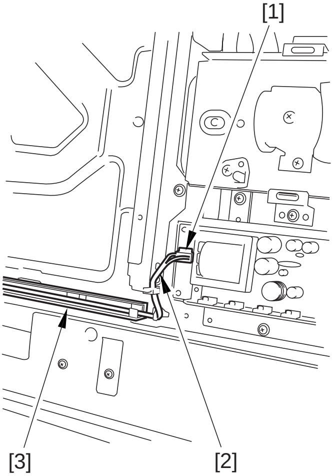
F-5-50



F-5-51

5.4.2.9 Removing the Scanning Lamp

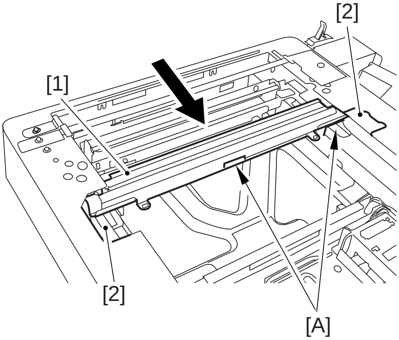
1) Disconnect the connector [1], and free the cable [2] from the cable guide [3].



F-5-52

2) Slide the No. 1 mirror base [1] to the right to match it against the cut-off [2] of the frame.

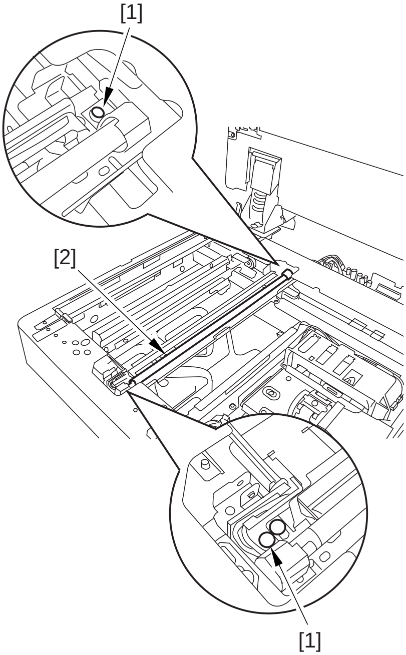
⚠ When sliding the No. 1 mirror base, be sure to hold it by the cut-up tab [A] of the mirror stay.



F-5-53

4) Remove the 2 screws [1], and detach the

scanning lamp [2].



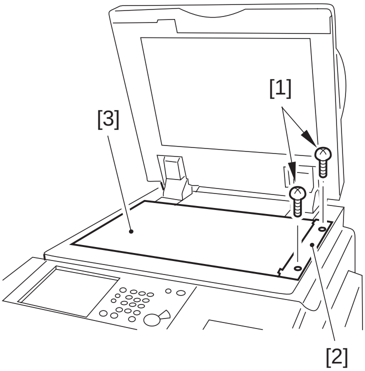
F-5-54

5.4.3 Reader Controller PCB

5.4.3.1 Removing the Copyboard Glass

1) Open the ADF.

2) Remove the 2 screws [1], and detach the right glass retainer [2]; then, detach the copyboard glass [3].

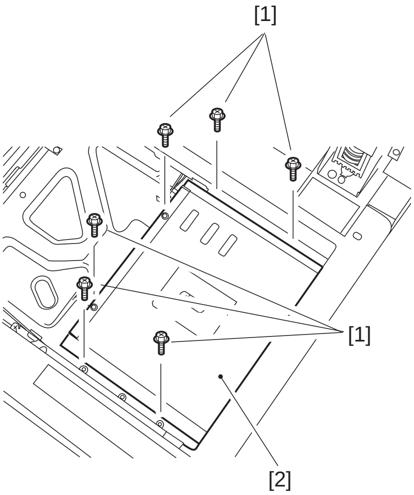


F-5-55

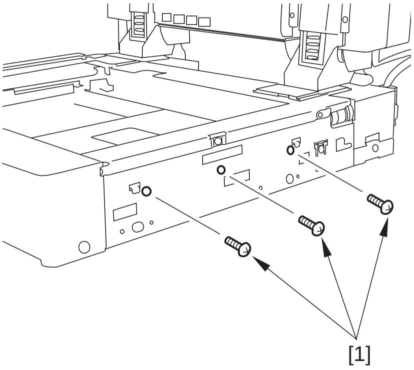
⚠ When detaching the copyboard glass, take care not to touch the white plate attached to its back. (Soiling can cause lines in the image). If soiled, clean it using lint-free paper moistened with alcohol.)

5.4.3.2 Removing the CCD Unit Cover

1) Remove the 9 screws [1], and detach the CCD unit cover [2].



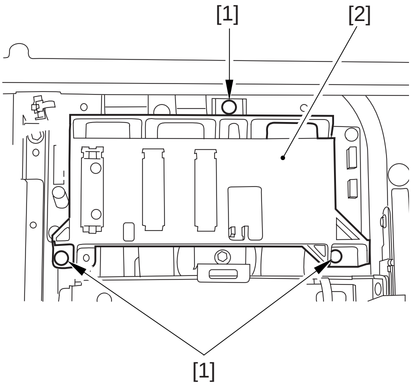
F-5-56



F-5-57

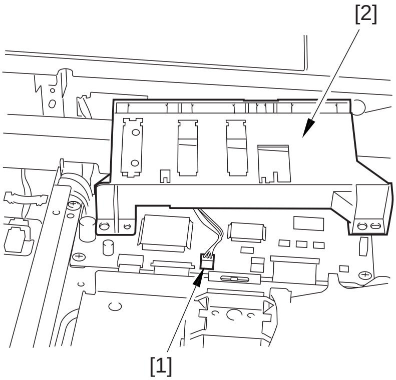
5.4.3.3 Removing the Original Size Sensor Unit

1) Remove the 3 screws [1], and slide the original size detection unit [2].



F-5-58

2) Disconnect the connector [1], and detach the original size sensor unit [2].

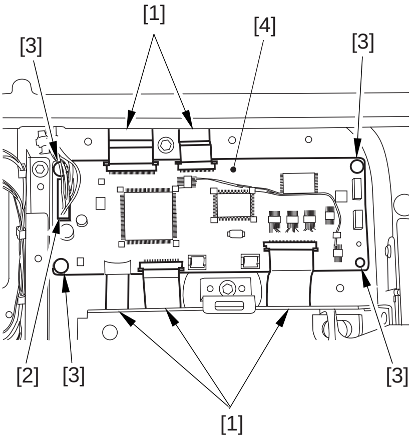


F-5-59

5.4.3.4 Removing the Reader Controller PCB

1) Disconnect the 5 flat cables [1] and the connector [2] then, remove the 4 screws [3], and detach the reader controller PCB

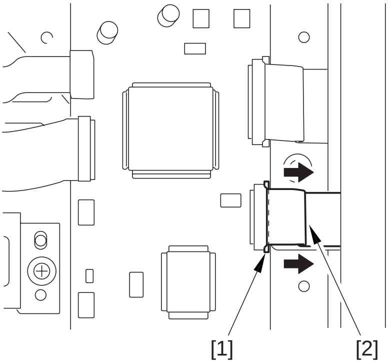
[4].



F-5-60

⚠ Disconnecting the Flat Cable

Slide the locking lever [1] in the direction of the arrow; then, disconnect the flat cable [2].



F-5-61

5.4.3.5 After Replacing the Reader Controller

⚠ Be sure to print out the settings using P-PRINT before replacing the reader controller.

<Initializing the RAM of the Reader Controller Without Replacing the PCB>

Using the SST, upload the backup data of the reader controller; after you have initialized the RAM, download the backup data, thereby eliminating the need for the following adjustment work.

1. Reader Unit-Related Adjustment

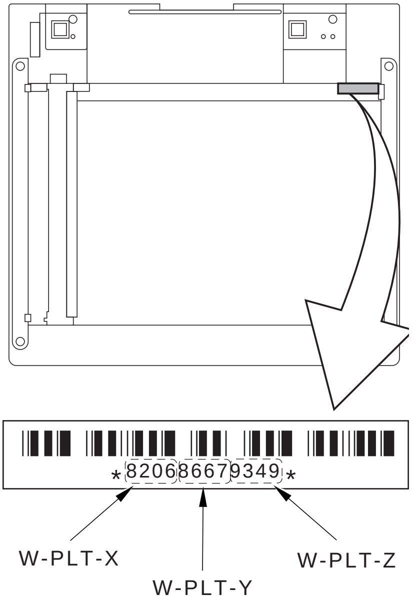
1) Using the SST, download the latest system software (R-CON).

2) Make the following selections in service mode, and press the OK key to initialize the RAM: COPIER>FUNCTION>CLER>R-CON. Then, turn off and then on the main power.

3) Enter the following settings in service mode:

a. standard while plate white level data

COPIER>ADJUST>CCD-W-PLATE-X,Y,Z



F-5-62

b. service mode label record (behind reader front cover)

b-1 image read start position adjustment (x direction; for fixed position reading)
COPIER>ADJUST>ADJ-XY>ADJ-X

b-2 image read start position adjustment (Y direction: for fixed reading)
COPIER>ADJUST>ADJ-XY>ADJ-Y

b-3 shading position adjustment (for fixed reading)
COPIER>ADJUST>ADJ-XY>ADJ-S

b-4 feeder mode main scanning position adjustment
COPIER>ADJUST>ADJ-XY>ADJ-Y-DF

b-5 ADF stream reading CCD read position adjustment
COPIER>ADJUST>ADJ-XY>STRD-POS

b-6 CCD unit RG/GB sub scanning direction color displacement correction
COPIER>ADJUST>CCD>CCDU-RG/GB

b-7 factory default CD unit RG/GB sub scanning color displacement correction
COPIER>ADJUST>CCD>FCCDU-RG/GB

b-8 auto gradation correction target value
COPIER>ADJUST>PASCAL>OFFSET-P-Y,M,C,K

2. ADF-Related Adjustment

⚠ The machine retains ADF-related service data in the RAM of its reader controller, calling for adjustment of the ADF if you have initialized its RAM.

1) In service mode, enter the settings indicated on the P-PRINT printout you have previously obtained:

a. original stop position adjustment
FEEDER>ADJUST>DOCST

b. original feed speed (magnification) adjustment
FEEDER>ADJUST>LA-SPEED

2) Make the following adjustments using the following service mode items:

a. ADF sensor sensitivity adjustment

FEEDER>FUNCTION>SENS-IN

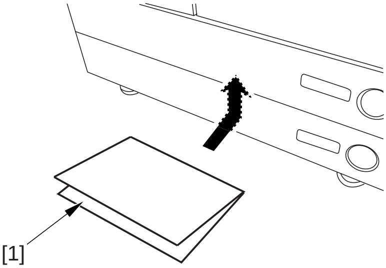
b. tray width adjustment

FEEDER>FUNCTION>TRY-A4
FEEDER>FUNCTION>TRY-A5R
FEEDER>FUNCTION>TRY-LTR
FEEDER>FUNCTION>TRY-LTRR

c. white level adjustment

COPIER>FUNCTION>CCD>DF-WLVL1
COPIER>FUNCTION>CCD>DF-WLVL2

When done, put the P-PRINT printout [1] in the service book case, disposing of the previous printout.

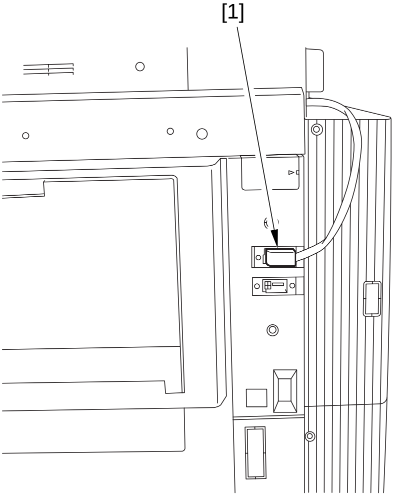


F-5-63

5.4.4 Interface PCB

5.4.4.1 Removing the Reader Rear Cover

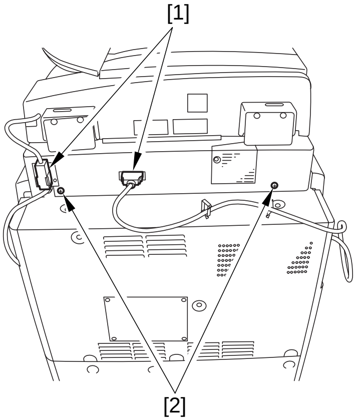
1) Disconnect the connector [1].



F-5-64

2) Disconnect the 2 connectors [1].

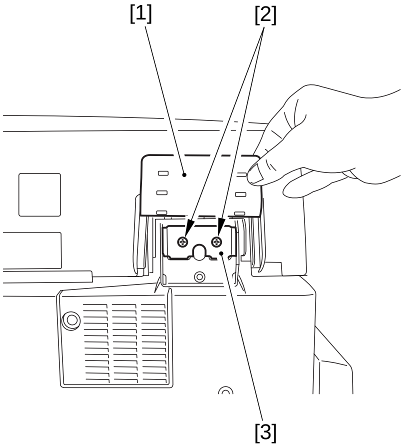
3) Remove the 2 screws [2].



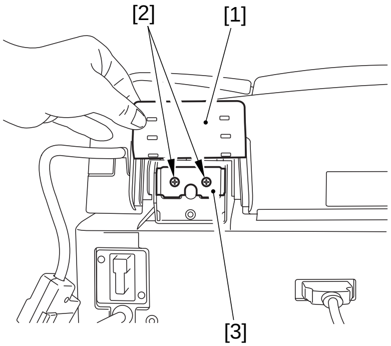
F-5-65

4) Bend up the edge of the rubber cover [1], and remove the screws (2 pc. each) [2];

then, detach the angle guide plate.



F-5-66

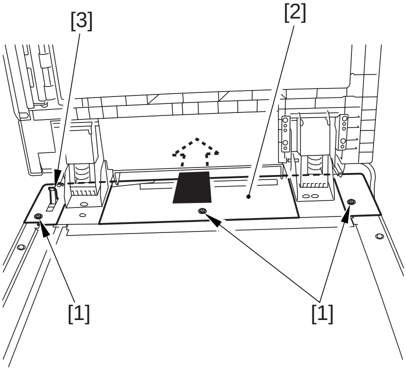


F-5-67

5) Open the ADF fully.

6) Remove the 3 screws [1], and slide the reader rear cover [2] toward the rear to detach.

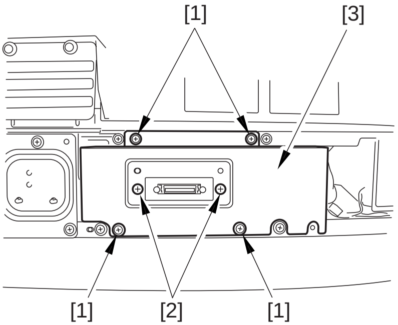
⚠ Take care not to damage the ADF open/closed sensor arm [3].



F-5-68

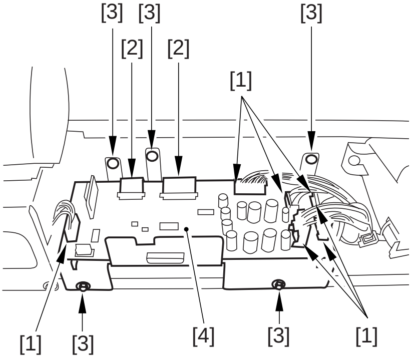
5.4.4.2 Removing the Interface PCB

1) Remove the 4 RS tightening screws [1], and remove the 2 binding screws [2]; then, detach the interface PCB cover [3].



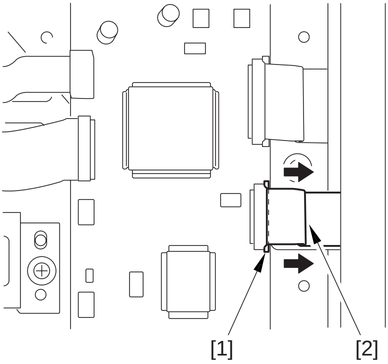
F-5-69

2) Disconnect the 7 connectors [1], detach the 2 flat cables [2], and remove the 5 screws [3]; then, detach the interface PCB unit [4].



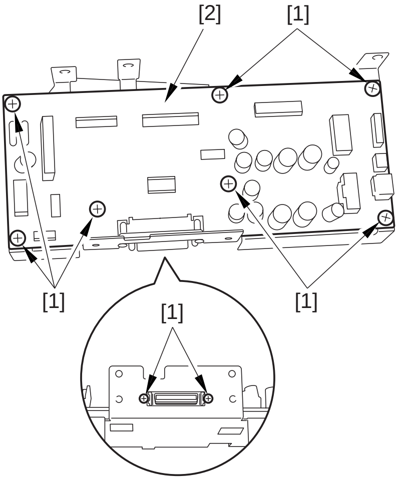
F-5-70

⚠ How to Disconnect the Flat Cable
Slide the locking lever [1] in the direction of the arrow, and disconnect the flat cable [2].



F-5-71

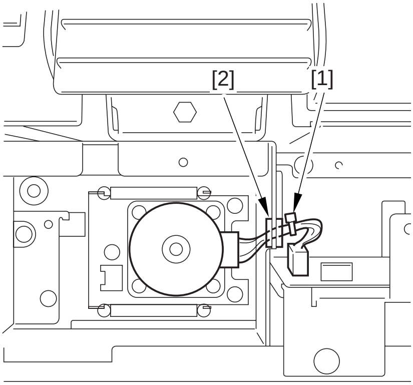
3) Remove the 9 screws [1], and detach the interface PCB [2].



F-5-72

5.4.4.3 Points to Note When Mounting the Interface PCB

⚠ If the tie-wrap [1] of the scanner motor harness is closer to the motor than the wire guide [2], the harness will come into contact with the rotor and suffer damage. Be sure that the tie-wrap is closer to the interface PCB than the wire guide.



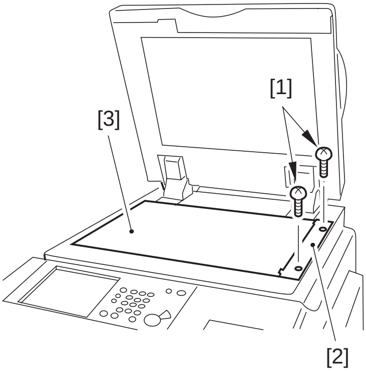
F-5-73

5.4.5 Inverter PCB

5.4.5.1 Removing the Copyboard Glass

1) Open the ADF.

2) Remove the 2 screws [1], and detach the right glass retainer [2]; then, detach the copyboard glass [3].

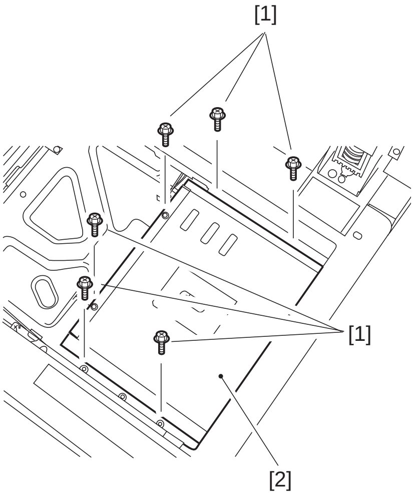


F-5-74

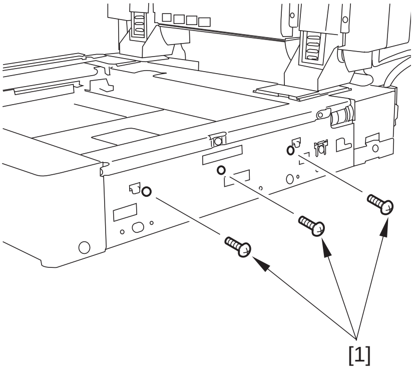
⚠ When detaching the copyboard glass, take care not to touch the white plate attached to its back. (Soiling can cause lines in the image). If soiled, clean it using lint-free paper moistened with alcohol.)

5.4.5.2 Removing the CCD Unit Cover

1) Remove the 9 screws [1], and detach the CCD unit cover [2].



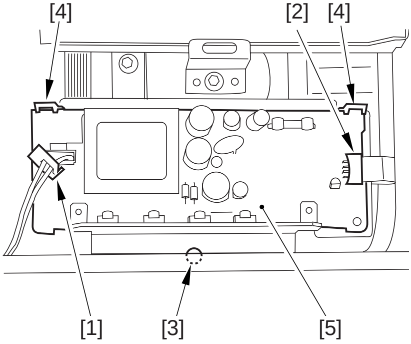
F-5-75



F-5-76

5.4.5.3 Removing the Inverter PCB

1) Disconnect the connector [1] and the flat cable [2]; then, remove the 3 screws, free the 2 PCB supports [4], and detach the inverter PCB [5].



F-5-77

5.4.5.4 After Replacing the Inverter PCB

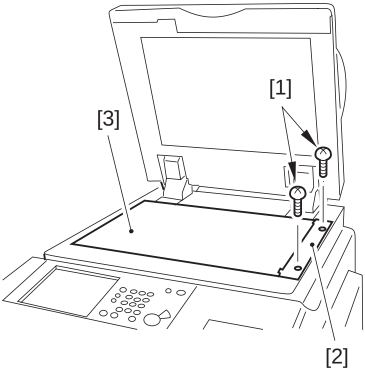
There is no special adjustment after replacing the inverter PCB.

5.4.6 CCD Unit

5.4.6.1 Removing the Copyboard Glass

1) Open the ADF.

2) Remove the 2 screws [1], and detach the right glass retainer [2]; then, detach the copyboard glass [3].

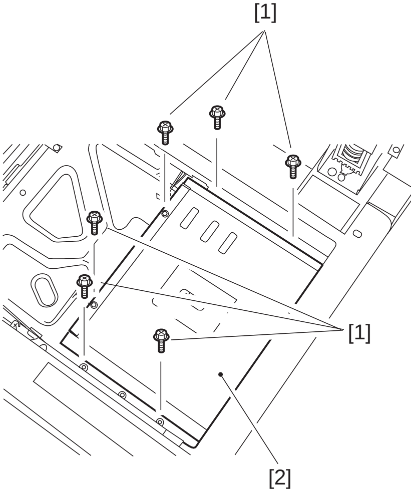


F-5-78

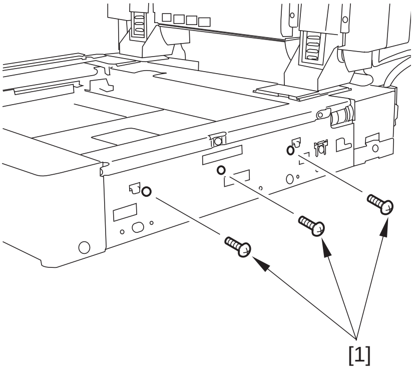
⚠ When detaching the copyboard glass, take care not to touch the white plate attached to its back. (Soiling can cause lines in the image). If soiled, clean it using lint-free paper moistened with alcohol.)

5.4.6.2 Removing the CCD Unit Cover

1) Remove the 9 screws [1], and detach the CCD unit cover [2].



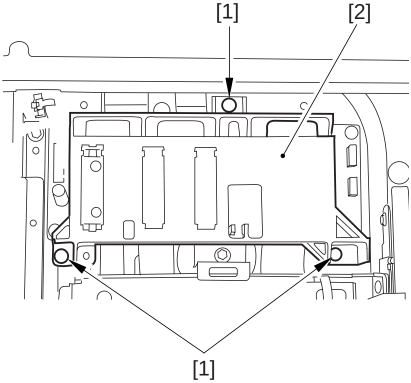
F-5-79



F-5-80

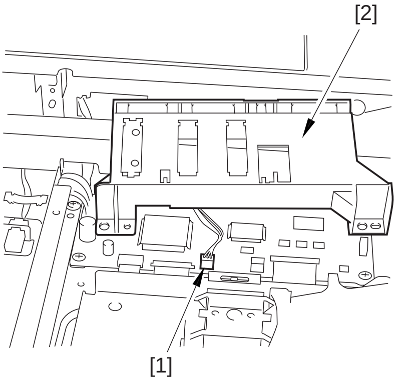
5.4.6.3 Original Size Detection Unit

1) Remove the 3 screws [1], and slide the original size detection unit [2].



F-5-81

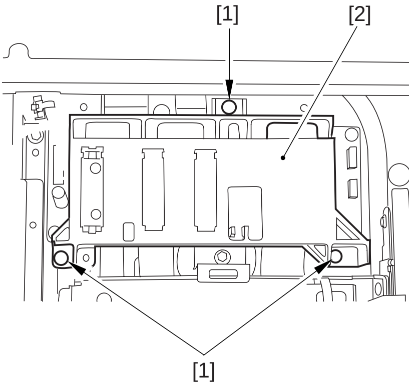
2) Disconnect the connector [1], and detach the original size sensor unit [2].



F-5-82

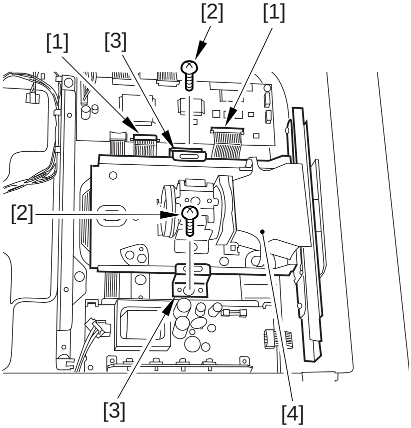
5.4.6.4 Removing the CCD Unit

1) Remove the 3 screws [1]], and detach the original size detection unit [2].



F-5-83

2) Disconnect the 2 flat cables [1] from the reader controller PCB; then, remove the 2 screws [2], detach the 2 leaf springs [3], and detach the CCD unit [4].

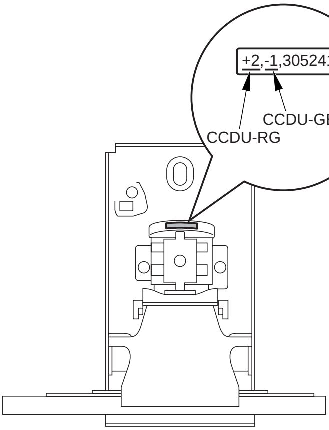


F-5-84

5.4.6.5 After Replacing the CCD Unit

If you have replaced the CCD unit, be sure to enter the settings indicated on the label attached to the CCD unit:

COPIER>ADJUST>CCD>CCDU-RG
(to enter the correction value for CCD-dependent RG color displacement in sub scanning direction)
COPIER>ADJUST>CCD>CCDU-GB
(to enter the correction value for CCD-dependent GB color displacement in sub scanning direction)



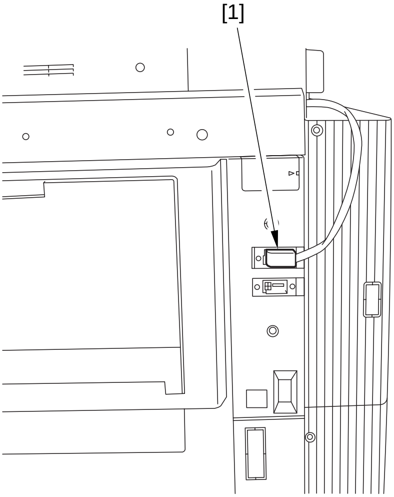
F-5-85

Moreover, be sure to update the settings indicated on the service label attached behind the reader unit front cover with the settings indicated on the label attached to the CCD unit.

5.4.7 Scanner Motor

5.4.7.1 Removing the Reader Rear Cover

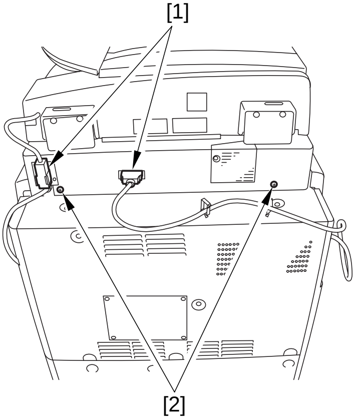
1) Disconnect the connector [1].



F-5-86

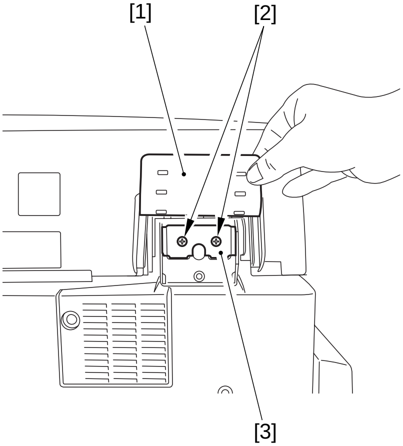
2) Disconnect the 2 connectors [1].

3) Remove the 2 screws [2].

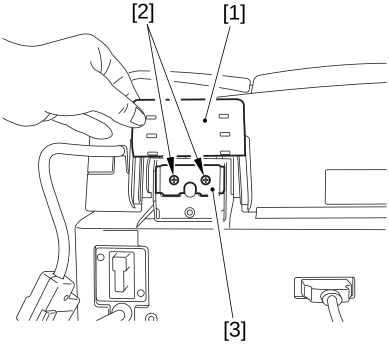


F-5-87

4) Bend up the edge of the rubber cover [1], and remove the screws (2 pc. each) [2]; then, detach the angle guide plate.



F-5-88

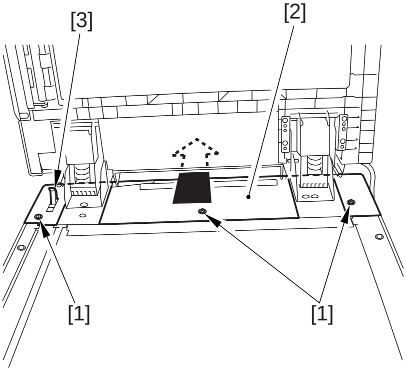


F-5-89

5) Open the ADF fully.

6) Remove the 3 screws [1], and slide the reader rear cover [2] toward the rear to detach.

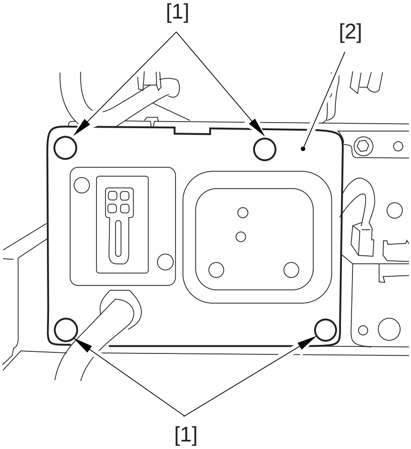
⚠ Take care not to damage the ADF open/closed sensor arm [3].



F-5-90

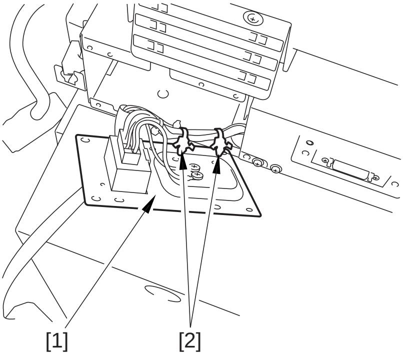
5.4.7.2 Removing the Scanner Motor

1) Remove the 4 screws [1], and detach the cover [2].



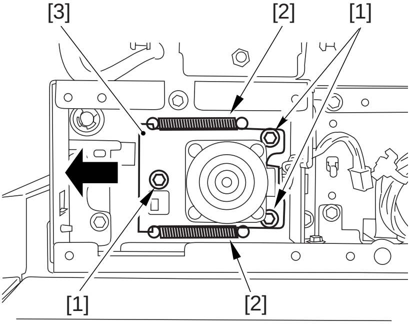
F-5-91

2) Detach the 2 harness retainers [2] from the back of the cover [1] to free the cover.



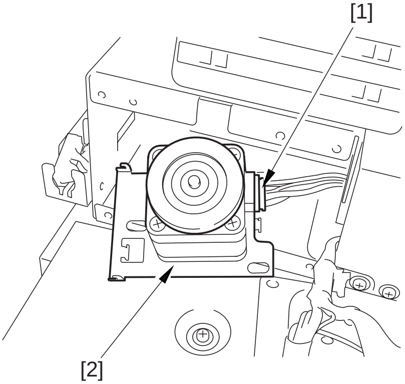
F-5-92

3) Remove the 3 screws [1], and detach the 2 springs [2]; then, shift the scanner motor [3] in the direction of the arrow to detach.



F-5-93

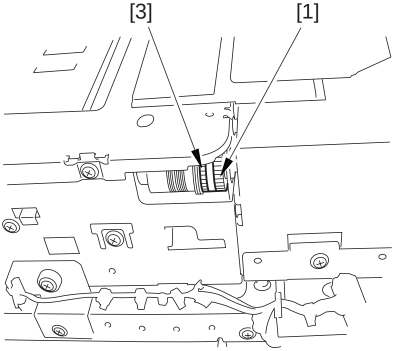
4) Disconnect the connector [1], and detach the scanner motor [2].



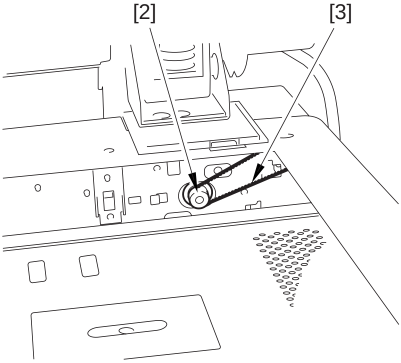
F-5-94

5.4.7.3 Mounting the Scanner Motor

When mounting the scanner motor, be sure that the timing belt [3] is securely attached to the scanner pulley [1] and the motor shaft [2].

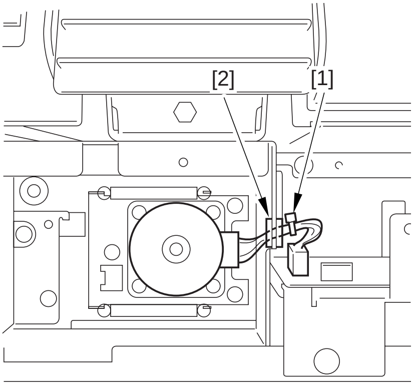


F-5-95



F-5-96

⚠ If the tie-wrap [1] of the scanner motor harness is closer to the motor side than the wire guide [2], the harness can come into contact with the rotor of the scanner motor and suffer damage. Be sure that the tie-wrap is closer to the interface PCB than the wire guide when mounting the scanner motor.

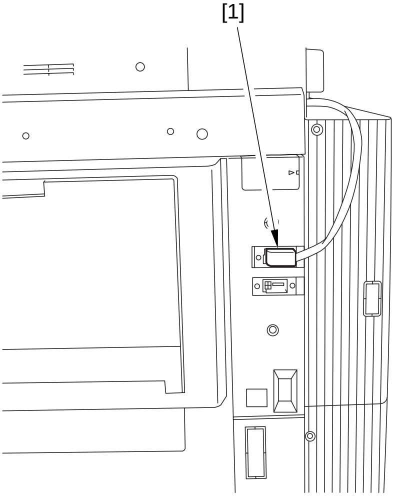


F-5-97

5.4.8 ADF Open/Close Sensor

5.4.8.1 Removing the Reader Rear Cover

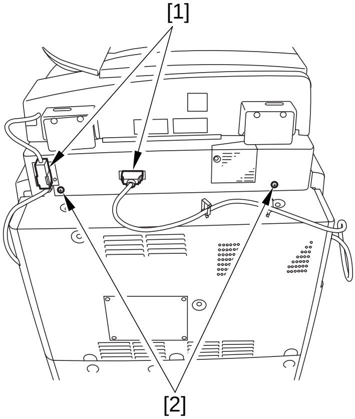
1) Disconnect the connector [1].



F-5-98

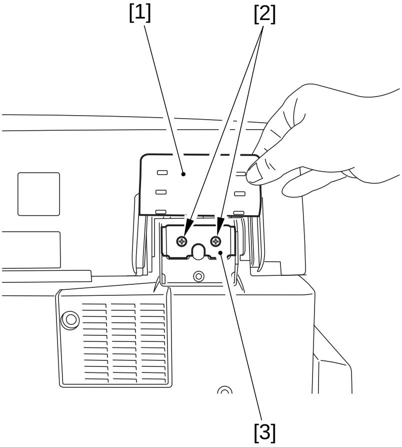
2) Disconnect the 2 connectors [1].

3) Remove the 2 screws [2].

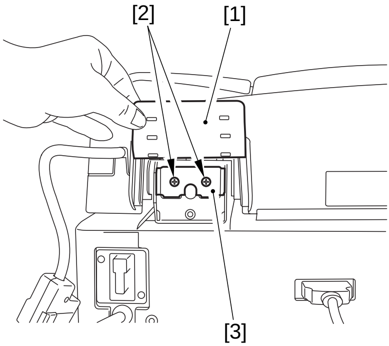


F-5-99

4) Bend up the edge of the rubber cover [1], and remove the screws (2 pc. each) [2]; then, detach the angle guide plate.



F-5-100

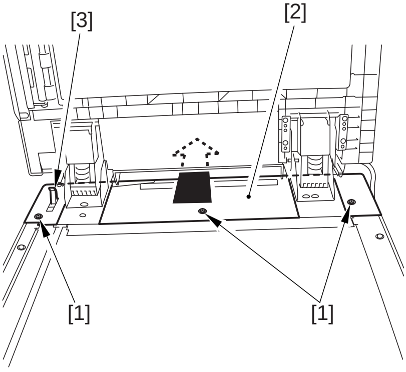


F-5-101

5) Open the ADF fully.

6) Remove the 3 screws [1], and slide the reader rear cover [2] toward the rear to detach.

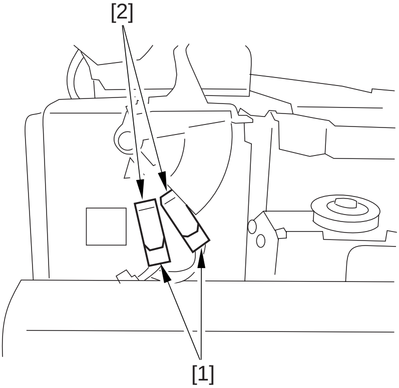
⚠ Take care not to damage the ADF open/closed sensor arm [3].



F-5-102

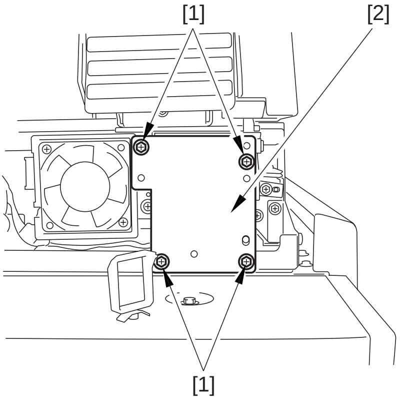
5.4.8.2 Removing the ADF Open/Closed Sensor

1) Disconnect the connector [1].



F-5-103

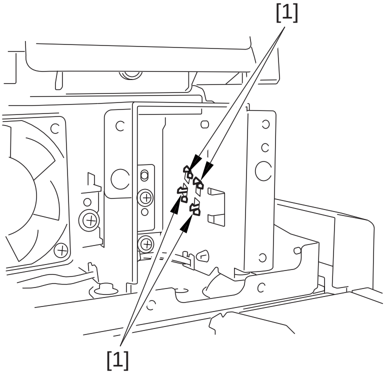
2) Remove the 4 screws [1], and detach the reinforcing plate [2].



F-5-104

3) Free the hook [1], and detach the ADF

open/closed sensor (1, 2).

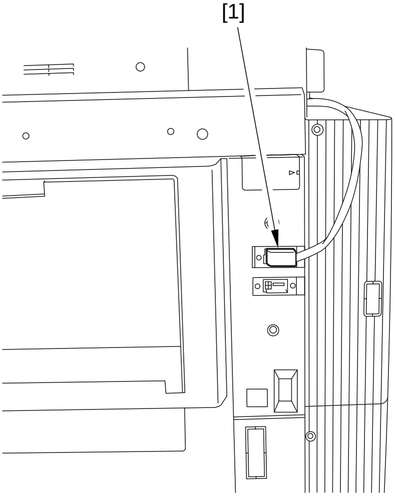


F-5-105

5.4.9 Scanner HP Sensor

5.4.9.1 Removing the Rear Cover

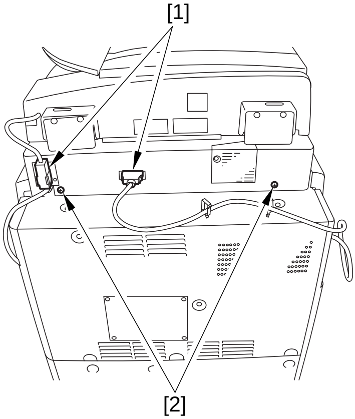
1) Disconnect the connector [1].



F-5-106

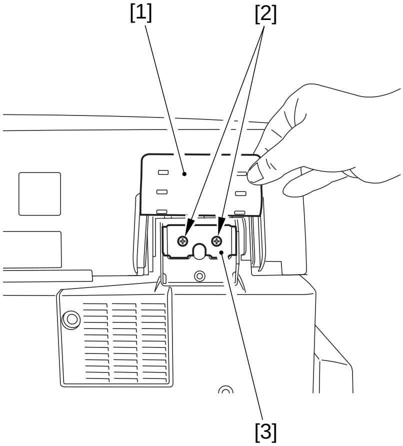
2) Disconnect the 2 connectors [1].

3) Remove the 2 screws [2].

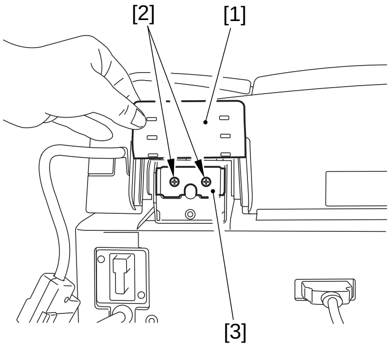


F-5-107

4) Bend up the edge of the rubber cover [1], and remove the screws (2 pc. each) [2]; then, detach the angle guide plate.



F-5-108

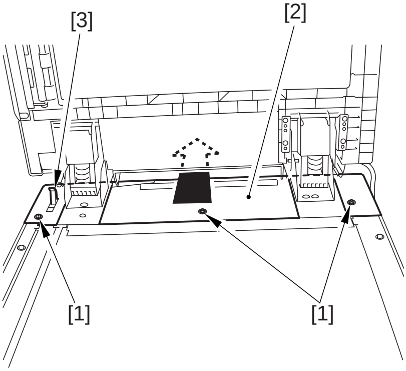


F-5-109

5) Open the ADF fully.

6) Remove the 3 screws [1], and slide the reader rear cover [2] toward the rear to detach.

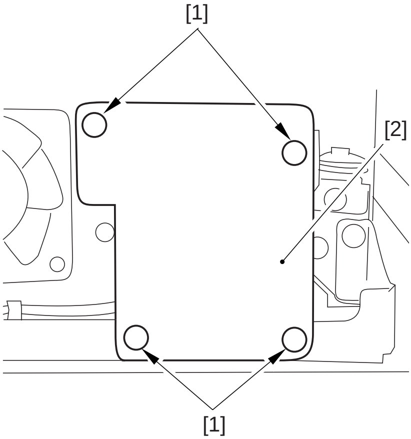
⚠ Take care not to damage the ADF open/closed sensor arm [3].



F-5-110

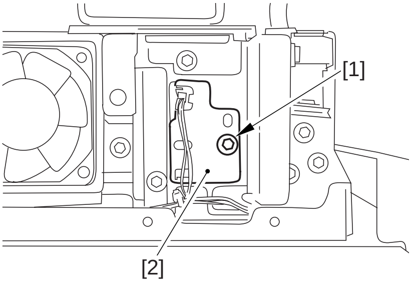
5.4.9.2 Removing the Mirror Base Home Position Sensor

1) Remove the 4 screws [1], and detach the plate [2].



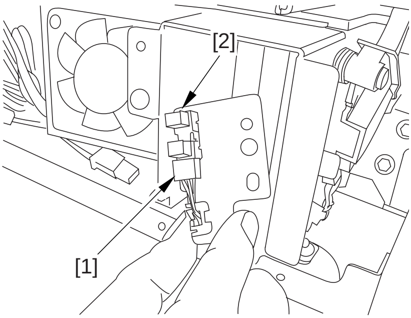
F-5-111

2) Remove the screw [1], and detach the sensor mounting plate [2].



F-5-112

3) Disconnect the connector [1], and detach the home position sensor [1].



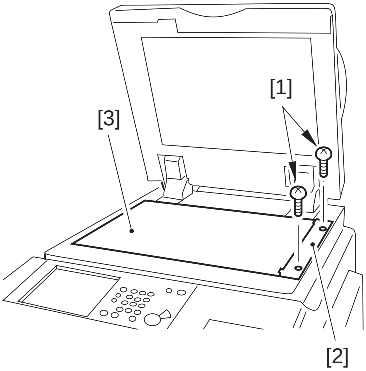
F-5-113

5.4.10 Original Sensor

5.4.10.1 Removing the Copyboard Glass

1) Open the ADF.

2) Remove the 2 screws [1], and detach the right glass retainer [2]; then, detach the copyboard glass [3].

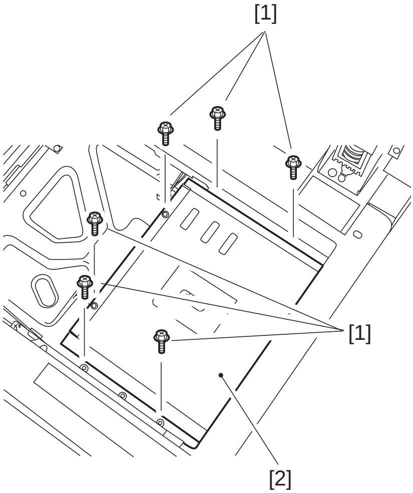


F-5-114

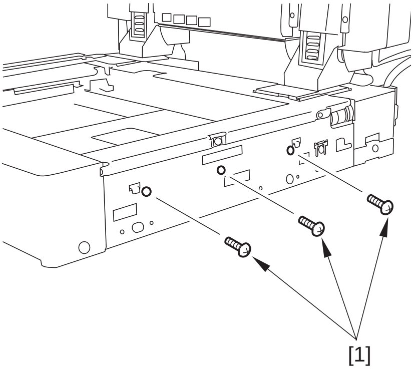
⚠ When detaching the copyboard glass, take care not to touch the white plate attached to its back. (Soiling can cause lines in the image). If soiled, clean it using lint-free paper moistened with alcohol.)

5.4.10.2 Removing the CCD Unit Cover

1) Remove the 9 screws [1], and detach the CCD unit cover [2].



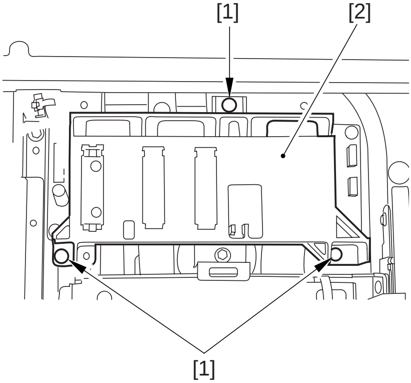
F-5-115



F-5-116

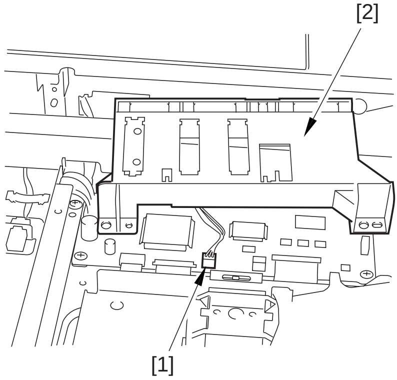
5.4.10.3 Removing the Original Size Sensor Unit

1) Remove the 3 screws [1], and slide the original size detection unit [2].



F-5-117

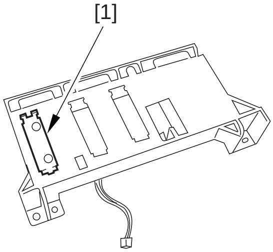
2) Disconnect the connector [1], and detach the original size sensor unit [2].



F-5-118

5.4.10.4 Removing the Original Size Sensor

1) While freeing the claw at the edge, detach the original size sensor [1].

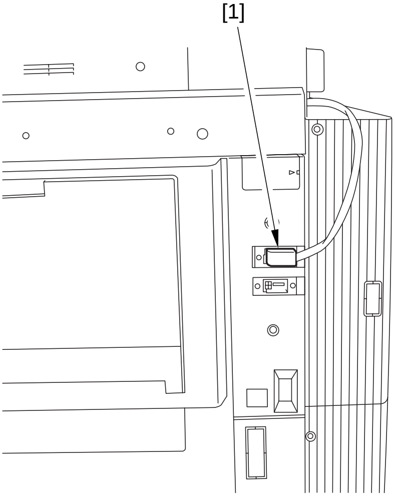


F-5-119

5.4.11 Cooling Fan

5.4.11.1 Removing the Reader Rear Cover

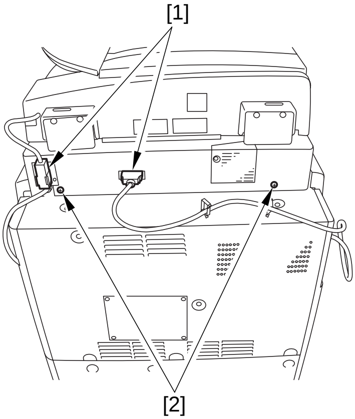
1) Disconnect the connector [1].



F-5-120

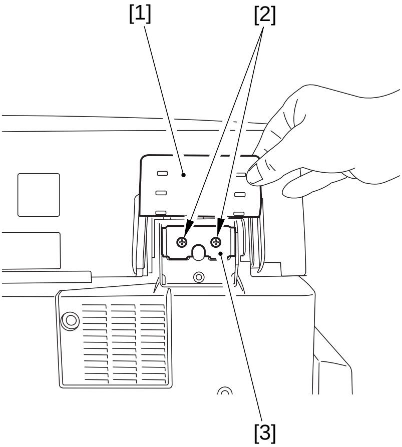
2) Disconnect the 2 connectors [1].

3) Remove the 2 screws [2].

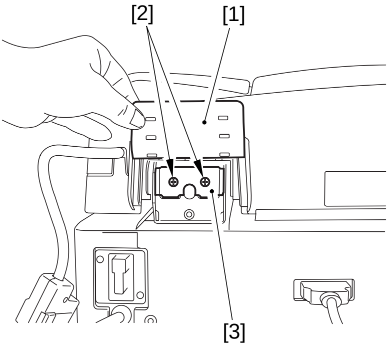


F-5-121

4) Bend up the edge of the rubber cover [1], and remove the screws (2 pc. each) [2]; then, detach the angle guide plate.



F-5-122

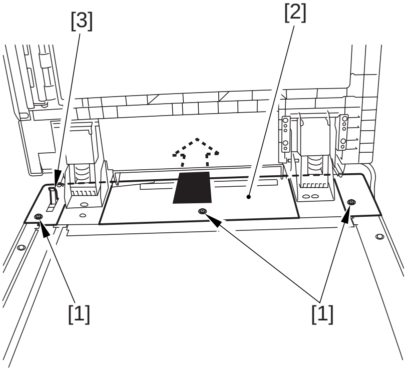


F-5-123

5) Open the ADF fully.

6) Remove the 3 screws [1], and slide the reader rear cover [2] toward the rear to detach.

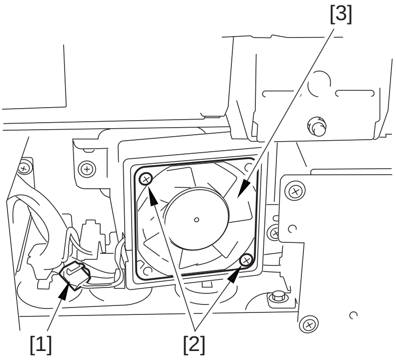
⚠ Take care not to damage the ADF open/closed sensor arm [3].



F-5-124

5.4.11.2 Removing the Cooling Fan

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the cooling fan [3].



F-5-125

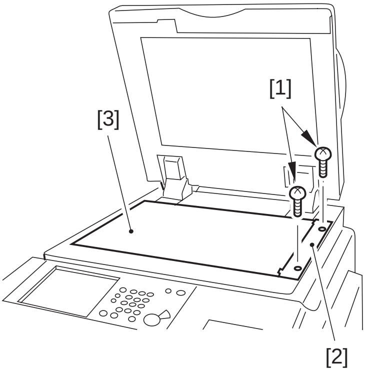
5.4.12 Scanner Drive Cable

5.4.12.1 Outline

Be sure to keep the following on hand when replacing the scanner drive cable:
- mirror positioning tool

5.4.12.2 Removing the Copyboard Glass

1) Open the ADF.
2) Remove the 2 screws [1], and detach the right glass retainer [2]; then, detach the copyboard glass [3].

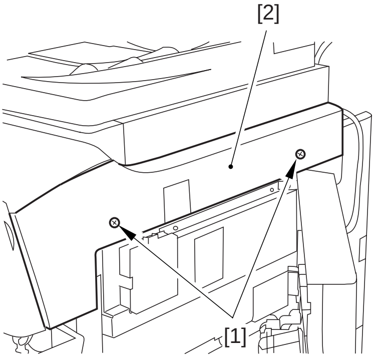


F-5-126

⚠ When detaching the copyboard glass, take care not to touch the white plate attached to its back. (Soiling can cause lines in the image). If soiled, clean it using lint-free paper moistened with alcohol.)

5.4.12.3 Removing the Right Cover (upper)

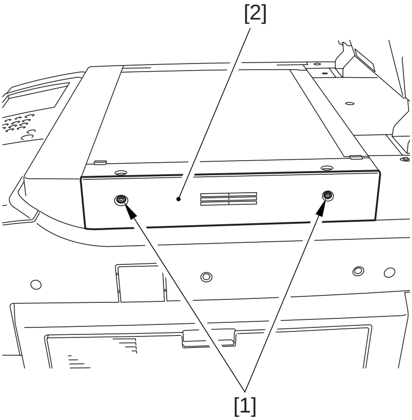
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-5-127

5.4.12.4 Removing the Right Cover

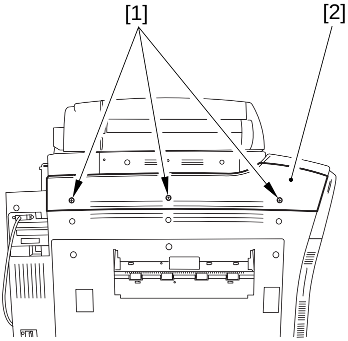
1) Remove the 2 screws [1], and detach the reader right cover [2].



F-5-128

5.4.12.5 Removing the Left Cover (upper)

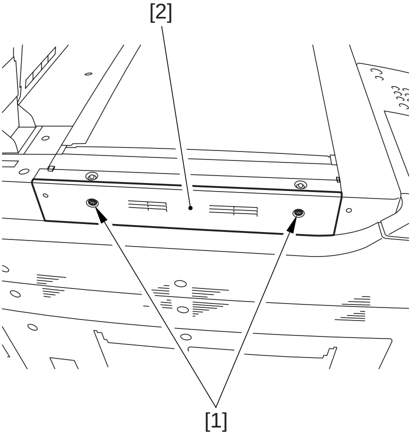
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-5-129

5.4.12.6 Removing the Reader Left Cover

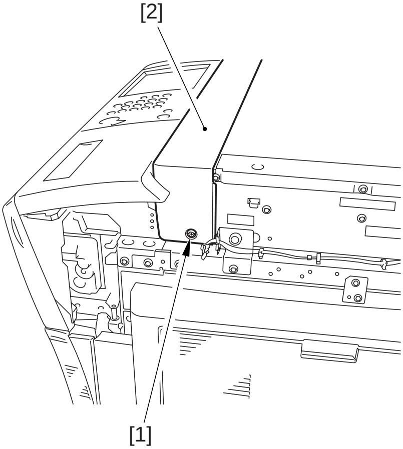
1) Remove the 2 screws [1], and detach the reader left cover [2].



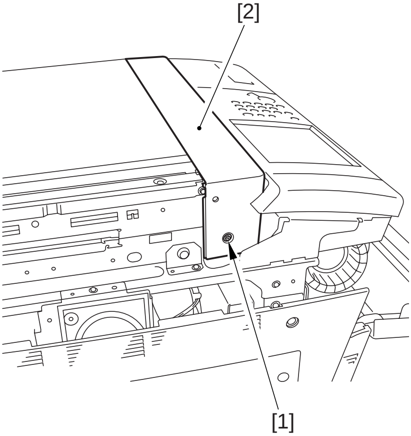
F-5-130

5.4.12.7 Removing the Reader Front Cover

1) Remove the screw [2] (1 pc. each) from the left and right of the reader front cover [1].

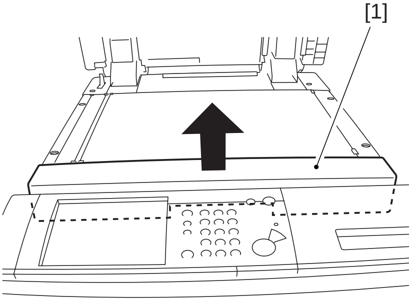


F-5-131



F-5-132

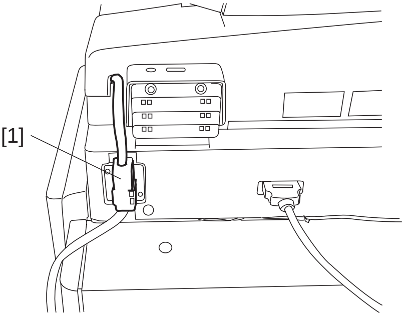
2) Detach the reader front cover [1] in upward direction [1].



F-5-133

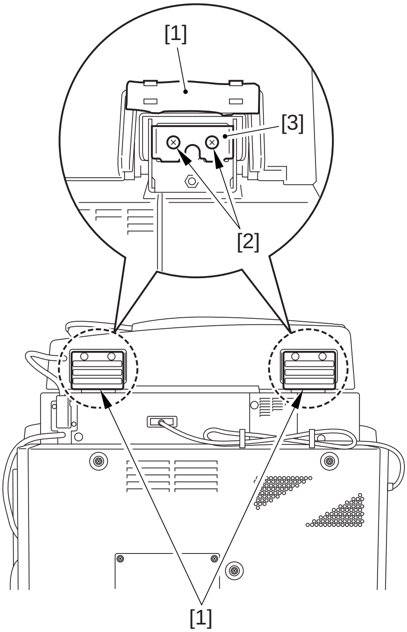
5.4.12.8 Removing the ADF

1) Disconnect the communications cable [1] of the ADF from the host machine.



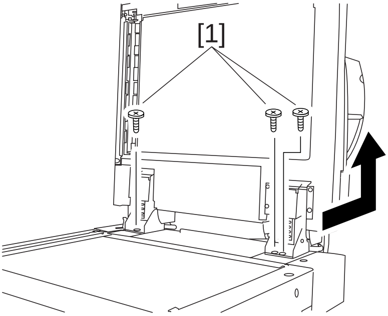
F-5-134

2) Bend up the edge of the rubber cover [1], and remove the 2 screws [2]; then, detach the angle guide plate [3].



F-5-135

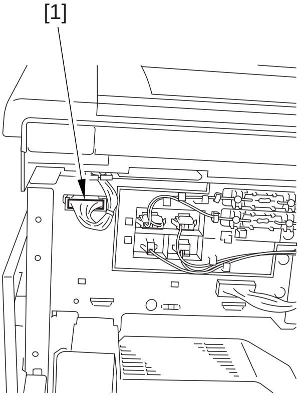
3) Remove the 3 knurled screws [1], and slide the machine toward the front, and lift it to detach.



F-5-136

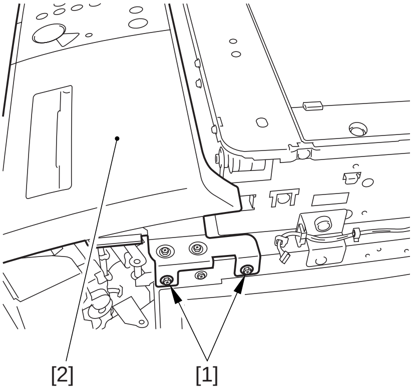
5.4.12.9 Removing the Control Panel

1) Disconnect the connector [1].

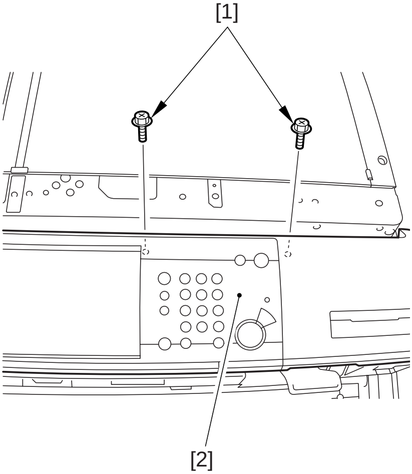


F-5-137

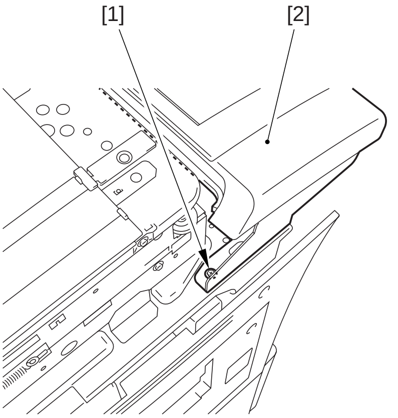
2) Remove the 5 screws [1], and detach the control panel [2] together with the cover.



F-5-138



F-5-139



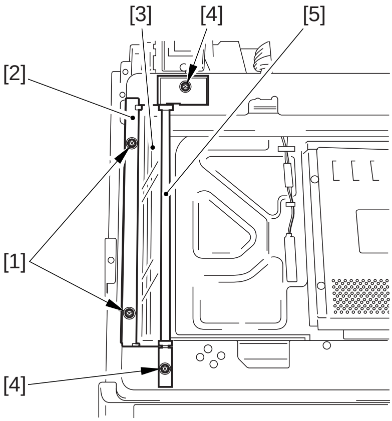
F-5-140

5.4.12.10 Removing the Scanner Drive Cable

1) Remove the 2 screws [1], and detach the reading glass retainer [2].

When removing the reading glass retainer, take care so that the leaf spring will not come off.

2) Remove the reading glass [3].
3) Remove the 2 screws [4], and detach the left glass retainer [5].



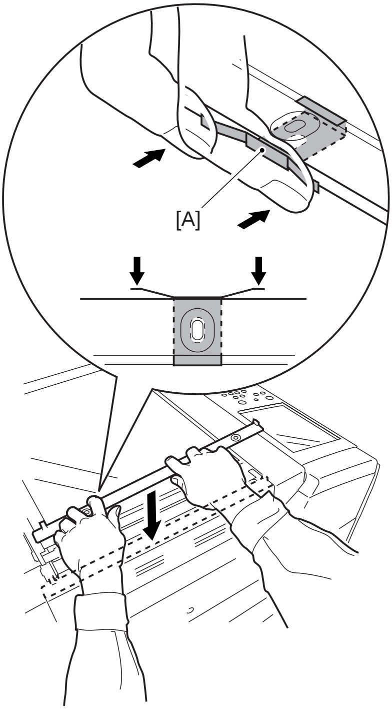
F-5-141

When fitting it, be sure to hold down both ends of the leaf spring [A] with your fingers. (Take care not to bend the leaf spring.)

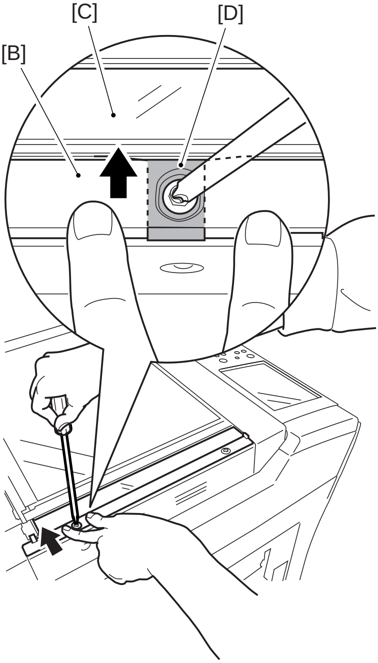
Be sure to fit it while forcing the left glass retainer [B] against the reading glass [C].

Check to make sure that the side of the reading glass and the leaf spring [D] of the left glass retainer are in firm contact.

Otherwise, dust from the reading glass can start to collect, causing lines in images.

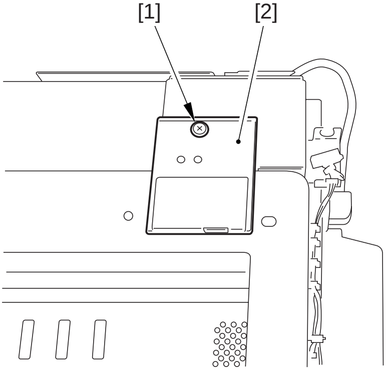


F-5-142



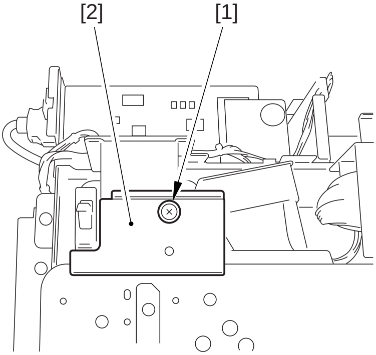
F-5-143

4) Remove the screw [1], and detach the ADF right screw cover [2].



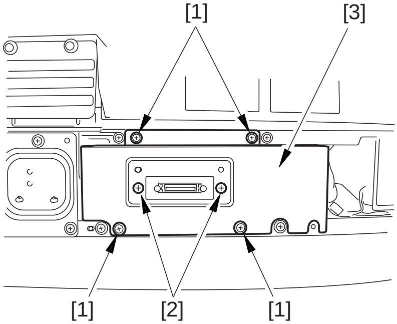
F-5-144

5) Remove the screw[1], and detach the ADF left screw cover [2].



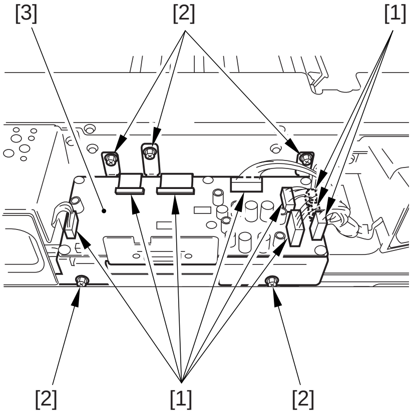
F-5-145

6) Remove the 6 screws [1], and detach the interface PCB cover.



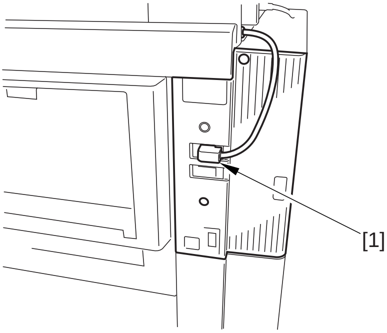
F-5-146

7) Disconnect the 9 connectors [1], and remove the 5 screws [2]; then, detach the interface PCB [3] together with its base.



F-5-147

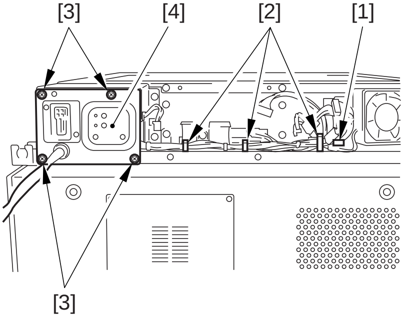
8) Disconnect the reader communications cable.



F-5-148

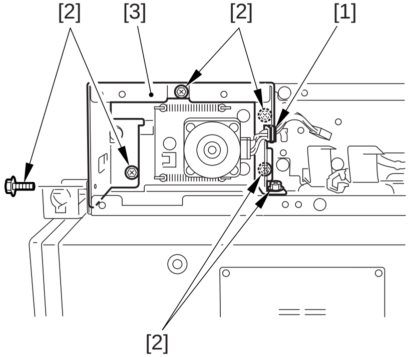
9) Disconnect the connector [1], and open the 3 wire saddles [2].

10) Remove the 4 screws [3], and detach the motor cover [4] together with the harness.



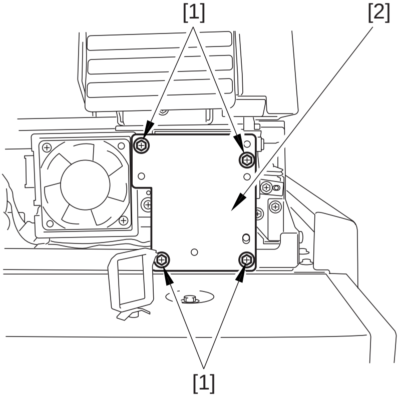
F-5-149

11) Free the harness from the wire saddle [1], and remove the 6 screws [2]; then, detach the motor frame [3].



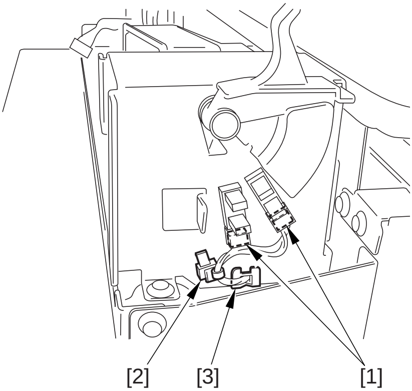
F-5-150

12) Remove the 4 screws [1], and detach the ADF open/closed sensor cover [2].



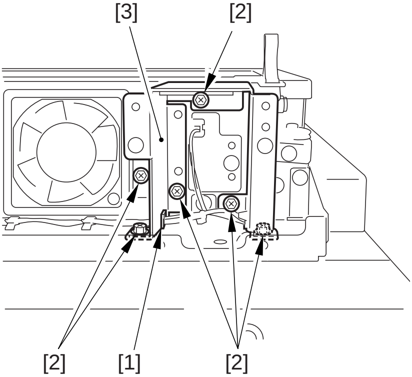
F-5-151

13) Disconnect the 2 connectors [1], and detach the snap-open band [2]; then, free the harness from the wire saddle [3].



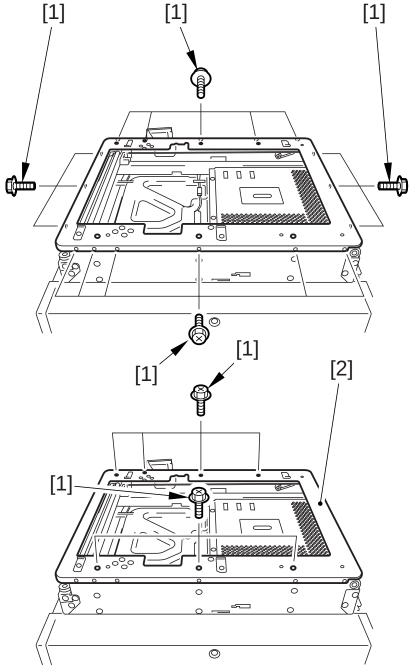
F-5-152

14) Free the harness from the wire saddle [1], and remove the 6 screws [2]; then, detach the ADF open/closed sensor base [3].



F-5-153

15) Remove the 24 screws [1], and detach the reader upper frame [2].



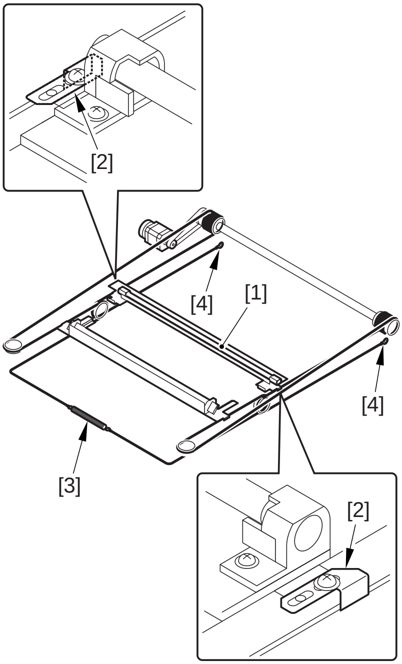
F-5-154

16) Remove the 2 cable fixing screws [2] of the No. 1 mirror base [1].

17) Remove the spring [3] used to hold the cable in place.

18) Free the 2 hooks of the cable from the right side of the reader frame.

19) Free the cable from the pulleys.



F-5-155

5.4.12.11 Fitting the Scanner Drive Cable

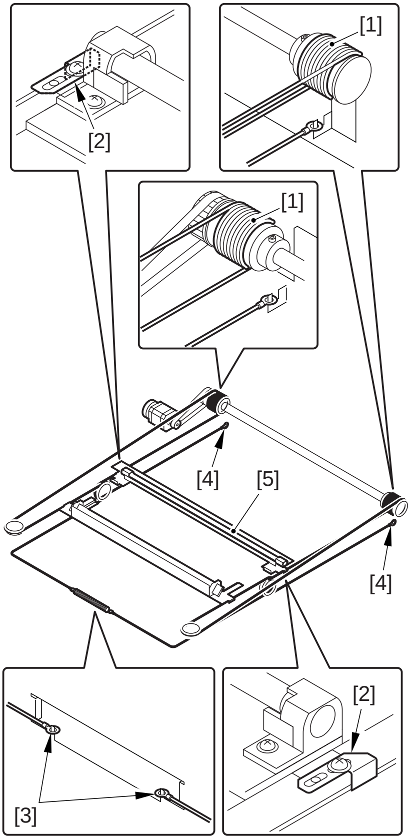
1) Fit the ball of the cable in the hole of the drive pulley [1], and wind the cable (4 times inside, 5 times outside); then, fix it in place using tape or the like. At this time, be sure that the cable fixing [2] is on the

inside.

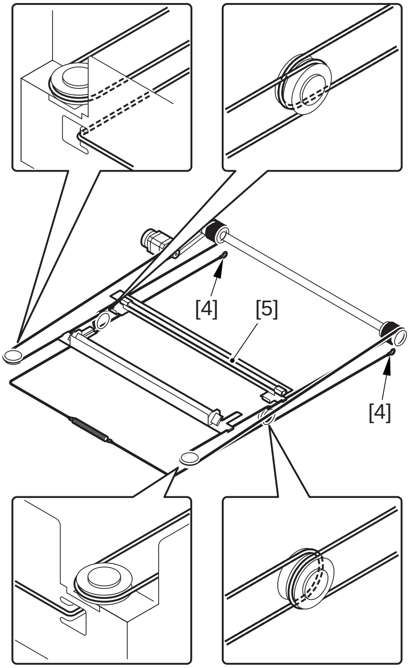
2) Engage the cable on the pulleys; then, engage one end of the cable on the hook [3] of the left side and the other end on the hook of the right side.

3) Temporarily fix the cable fixing plate [2] in place to the No. 1 mirror base [5].

4) Mount the reader upper frame.



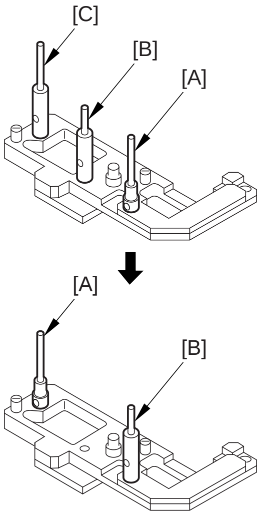
F-5-156



F-5-157

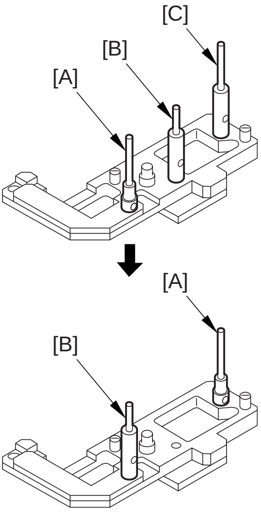
5.4.12.12 Adjusting the Position of the No. 1/ No. 2 Mirror Base

1) Set the pins at the rear of the mirror positioning tool (FY9-3009-040) in such a way so that the tool may be used for the machine.



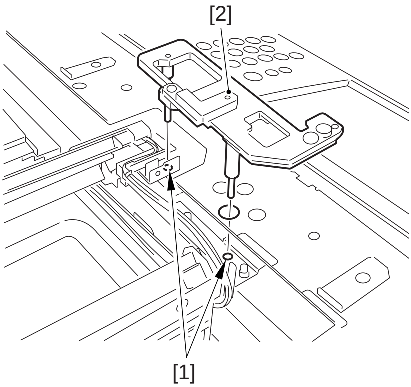
F-5-158

2) Set the pins at the front of the mirror positioning tool in such a way so that the tool may be used for the machine.

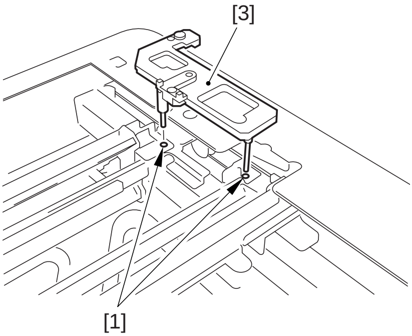


F-5-159

2) Fit the pins of the mirror positioning tool (front [2]; rear [3]) of the mirror positioning tool into the holes [1] of the No. 1 mirror base, No. 2 mirror base, and rail.



F-5-160



F-5-161

3) Fully secure the ends of the cable (you have temporarily fixed to the hooks of the reader frame previously).

5) Detach the mirror positioning tool (front, rear).

6) Put back the parts by reversing the steps used to detach them.

Chapter 6

Laser Exposure

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6.1 Construction

6.1.1 Specifications, Control Mechanisms, and Functions

T-6-1

Laser Light	
Wave length	645 to 665 mm (visible light)
Output	35mW
Number of beams	1

T-6-2

Laser Scanner Motor	
Type of motor	DC brushless
Revolution	32000 rpm (approx.)
Type of bearing	oil

T-6-3

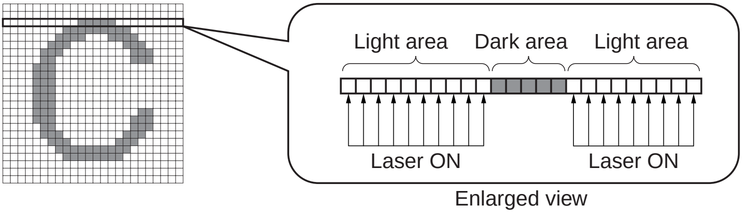
Polygon Mirror	
Number of facets	12 (29-mm dia.)

T-6-4

Control Mechanism	
Synchronization	main scanning direction
	sub scanning direction
Light intensity	APC
	PWM

Control Mechanism	
Others	laser activation/deactivation*1 (exposes "light" areas) laser scanner motor laser shutter

*1: The machine directs its laser beam to shine on "light" areas (non-image areas), leaving "dark" areas (image areas) as they are.

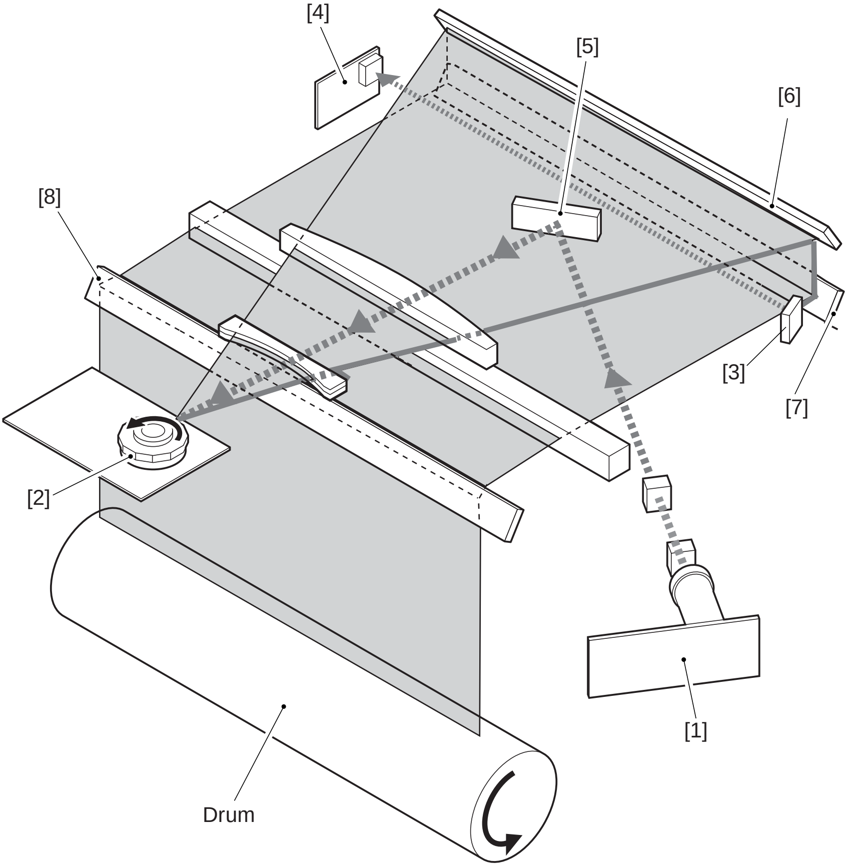


F-6-1

6.1.2 Major Components

T-6-5

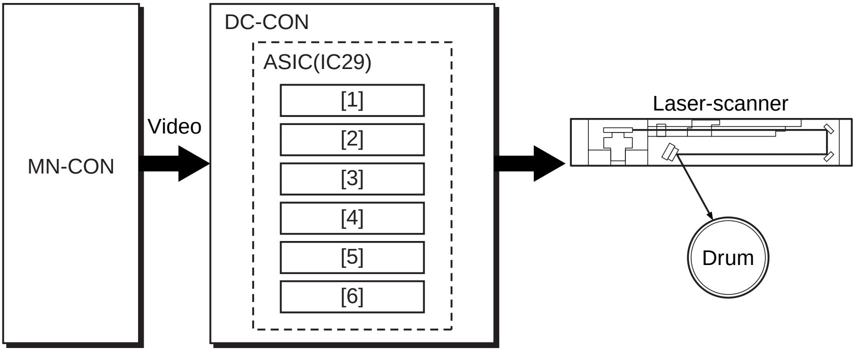
	Item	Description
[11	Laser unit	emits laser light.
[2]	Polygon mirror	scans laser light in main scanning direction.
[3]	BD mirror	reflects laser light, directing it to the BD PCB.
[4]	BD PCB	generates the BD signal.
[5]	Laser mirror 1	reflects laser light, directing it to the photosensitive drum.
[6]	Laser mirror 2	reflects laser light, directing it to the photosensitive drum.
[7]	Laser mirror 3	reflects laser light, directing it to the photosensitive drum.
[8]	Routing mirror	reflects laser light, directing it to the photosensitive drum.



F-6-2

6.1.3 Construction of the Control System

The machine uses ASIC1 (IC29) on its DC controller PCB to control the laser exposure system. ASIC1 (IC29) uses the video signals coming from the main controller PCB to form a latent static image on the photosensitive drum through the following 6 control mechanisms:


MN-CON
Video
DC-CON
ASIC(IC29)
[1]
[2]
[3]
[4]
[5]
[6]
Laser-scanner
Drum

F-6-3

1 turns on/off the laser unit
2 controls the laser light in main scanning direction
3 performs APC control
4 performs PWM control
5 controls the laser scanner motor
6 controls the laser shutter
MN-CON: main controller PCB
DC-CON: DC controller PCB

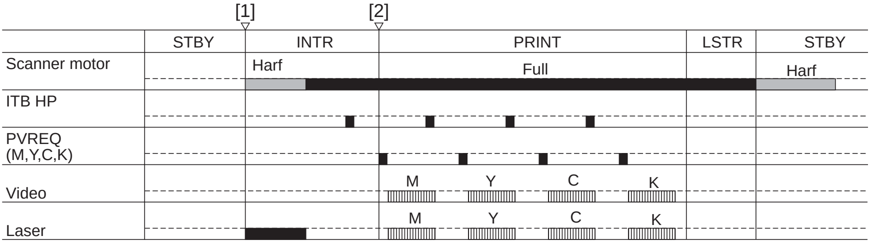
6.2 Basic Sequence

6.2.1 Basic Sequence of Operation

The following shows the basic sequence of operation of the laser exposure system:

1) the Start key is pressed or the print request signal arrives from the main controller PCB.
2) the DC controller PCB executes a control mechanism so that the laser scanner
3) rotates at the target speed; at the same time, it forces the laser unit to go on for a check on faults.
4) the machine becomes ready for forming an image.
5) the DC controller PCB generates sub scanning sync signals (see Memo; PVREQ-Y, PVREQ-M, PVREQ-C,PVREQ-K) for individual colors, and sends them to the main controller PCB.
6) the main controller PCB generates video signals using the sub scanning sync signals, and sends them to the DC controller PCB.
7) in response, the DC controller PCB turns on the laser unit to suit the video signals.

Full Color, A4, Plain Paper, 1 Page



F-6-4

[1] press on the Start key (print request signal)

[2] ready for image formation

Memo:

The sub scanning direction sync signal (PVREQ) is used to match the leading edge of the toner image on the drum and the leading edge of the print paper.

The timing at which the PVREQ signal is generated differs depending on the selected color mode:

- Full Color Mode

In the case of full color mode, an image must be formed in 4 colors (Y, M, C, Bk). All images are first formed on the intermediate transfer belt (ITB), and they must be controlled so that their leading edges will match without color displacement.

When the machine becomes ready for image formation in full color mode, the ITB home position sensor generates the ITBHP signal to serve as a reference so that the machine may generate the PVREQ signal for each color.

- **Mono Color Mode**

In the case of mono color mode, there is no need for color matching. When the machine becomes ready for image formation, therefore, it generates the PVREQ signal at specific timing regardless of the ITB home position signal (ITBHP).

6.3 Various Control

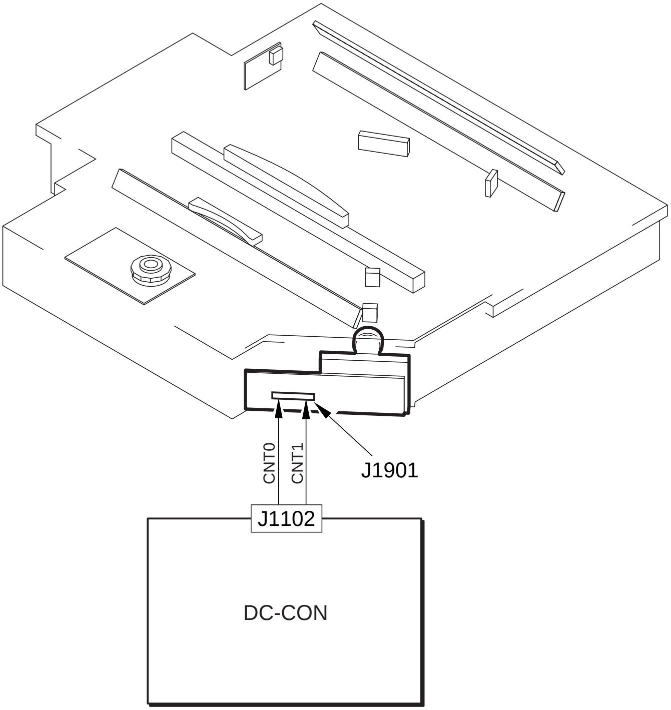
6.3.1 Controlling the Laser Activation Timing

6.3.1.1 Turning On and Off the Laser Unit

The laser unit is turned on or off by the laser driver PCB in response to the laser control signal (CONT0/CNT1) coming from the DC controller PCB.

T-6-6

Laser control signal		**State of operation**	**State of laser**
CNT0	**CNT1**		
0	0	standby	OFF
0	1	printing	video signal input enabled
1	0	APC	ON
1	1	forced OFF	OFF



F-6-5

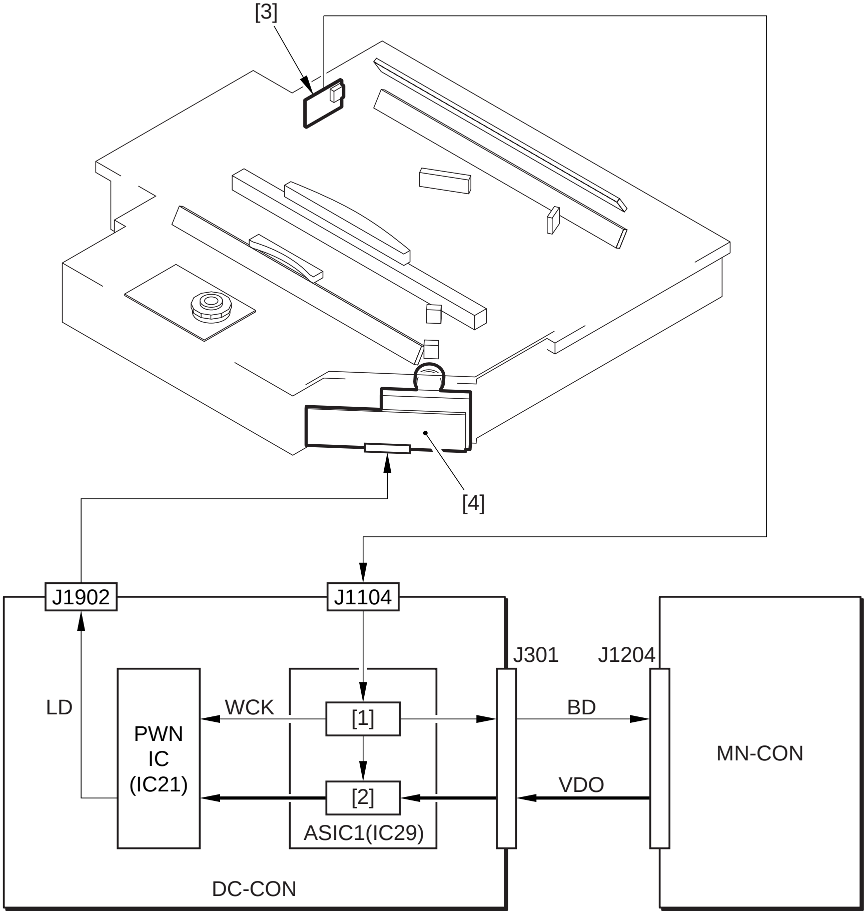
⚠ In standby mode, the intensity setting selected in APC is canceled.

6.3.1.2 Controlling the Synchronization in Main Scanning Direction

The machine controls the synchronization in main scanning direction to mach the write start position in main scanning direction, and the control is executed by the BD sync control circuit found in ASIC1, which serves to generate the sync signal for main scanning direction used by the DC controller PCB based on the BD signal coming from the BD PCB.

The following shows how the circuit operates:
The VIDEO signal from the main controller PCB is sent to FIFO of ASIC1; at the same time, the BD sync control circuit generates the printer sync signal (WCK) based on the BD signal, and sends the result to PWMIC and FIFO. Thereafter, FIFO reads the image signals in sync with the printer synch signal, and sends them to PWM1C, which converts the image

signals into a laser drive signal (LD) for output to the laser unit.


[3]
[4]
J1902
J1104
J301
J1204
LD
WCK
PWN
IC
(IC21)
[1]
[2]
ASIC1(IC29)
BD
VDO
MN-CON
DC-CON

F-6-6

1. BD sync control circuit
2. FIFO
3. BD PCB
4. Laser unit

MN-CON: main controller PCB
DC-CON: DC controller PCB

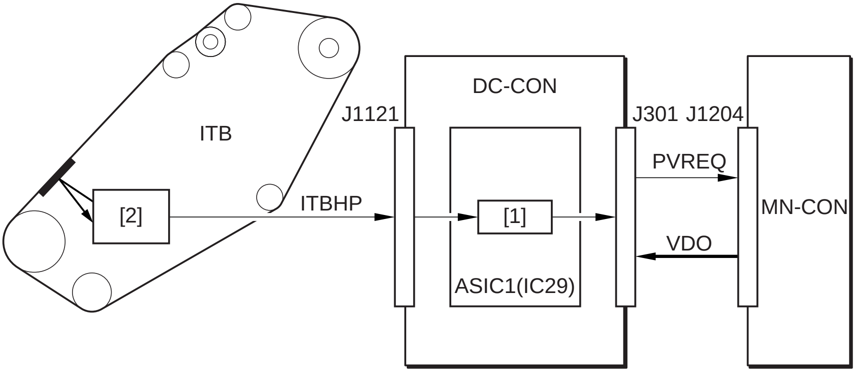
6.3.1.3 Controlling the Synchronization in Sub Scanning Direction

The machine controls the synchronization in sub scanning direction to match the write start position of each image to be formed on the ITB in full color mode.

This control mechanism is executed by the sub scanning sync control circuit of ASIC1, which uses the ITB home position signal (ITBHP) generated by the ITB home position sensor to generate the synch signal (PVREQ) for sub scanning direction.

The following shows how the circuit operates:

The ITB home position signal (ITBHP) generated by the ITB home position sensor is detected by the sub scanning synch control circuit; at the same time, the circuit generates the PVREQ signal for each color and sends the result to the main controller PCB. In response, the main controller PCB sends video signals to the DC controller PCB, which will form an image starting at a specific point on the ITB.



F-6-7

1) Sub scanning sync control circuit

2) ITB home position sensor

MN-CON: main controller PCB

DC-CON: DC controller PCB

Memo:

E100 (BD detention error)

-0001 indicates that the BD signal is not detected a specific period of time after the scanner has started up.

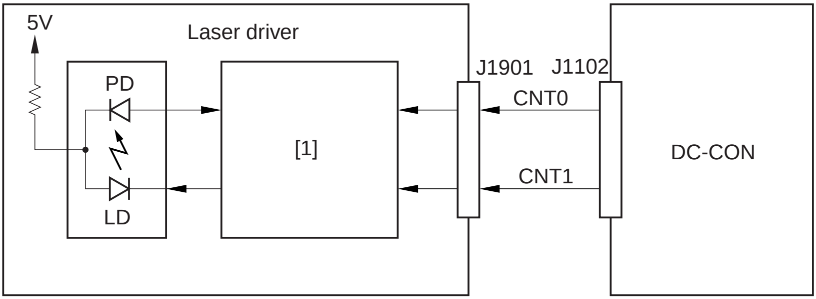
-0002 the BD signal is not detected while the scanner motor is rotating at a constant speed.

6.3.2 Controlling the Intensity of Laser Light

6.3.2.1 APC Control

The machine uses APC control to make sure that the intensity of laser light remains at a specific level by controlling the output of the laser diode of the laser driver.

For the control, the machine causes the DC controller to send the laser control signal (CNT0=1, CNT1=0) to the laser drive IC on the laser driver PCB. As a result, the laser drive IC is set to APC mode, thus forcing the laser diode (LD) to emit light. While the control is under, way, the laser driver IC uses the photo diode (PD) to monitor the laser diode (LD), adjusting the output of the laser diode until a specific level of intensity is reached.



F-6-8

1) Laser driver IC1

DC-CON: DC controller

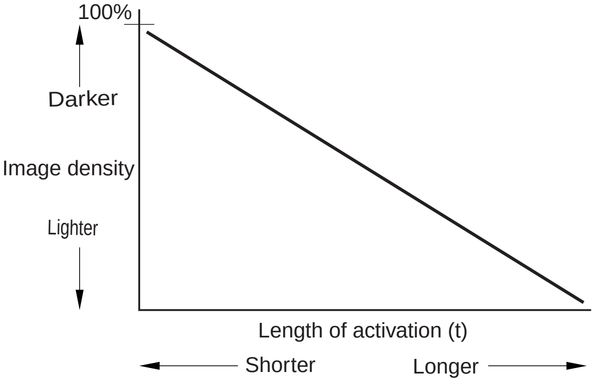
6.3.2.2 PWM Control

The machine uses PWM control to determine how long the laser unit must remain on to suit the image data coming from to the main controller PCB.

The length of time (see Memo) is determined by the DC controller PCB (16-step activation patterns for each pixel).

Memo:

The relationship between the length of laser activation and the density of the image is as follows. The machine exposes the light areas (non-image areas) and leaves the dark areas (image areas) as they are; further, the darker the image, the shorter the laser activation and, conversely, the lighter the image, the longer the laser activation.



F-6-9

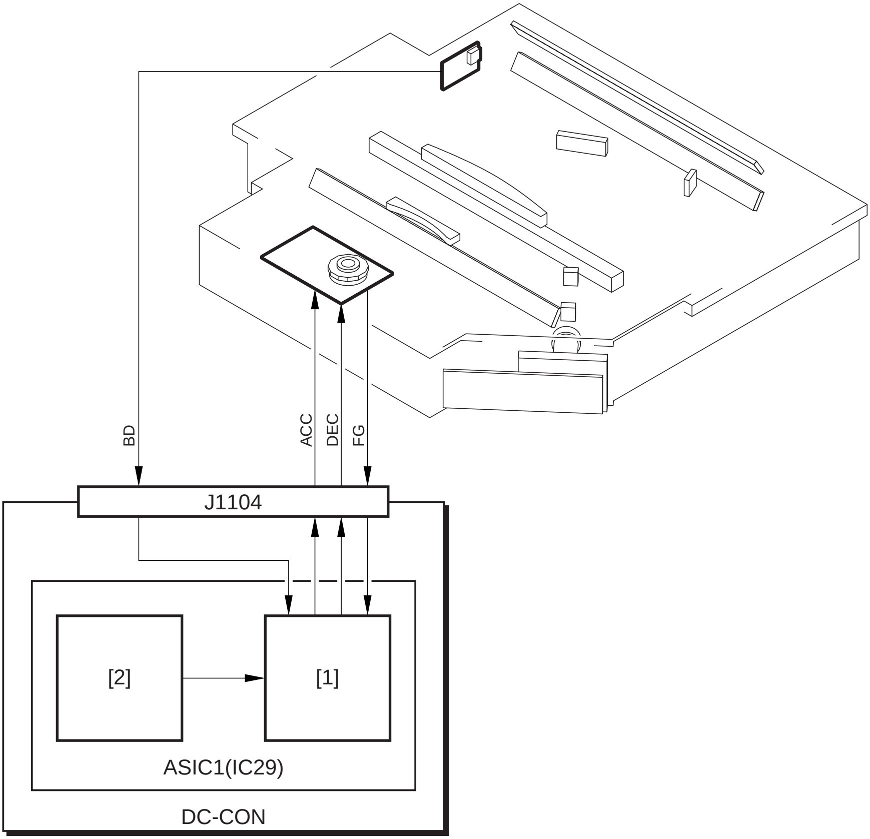
6.3.3 Controlling the Laser Scanner Motor

6.3.3.1 Controlling the Laser Scanner Motor

The machine controls the laser scanner motor so that the motor rotates at a specific speed using its motor speed control mechanism and reference signal generation mechanism found inside the DC controller PCB.

The motor speed control mechanism detects the speed detection signal (FG, BD), and compares it against the reference signal generated by the reference signal generation mechanism, thereby controlling the acceleration signal (ACC) and the deceleration signal (DECK) to make sure that the motor rotates at a specific speed.

The machine checks different references for speed detection to suit the state of the printer unit, ultimately reducing the length of time used to control the scanner motor speed. The FG signal is a detection signal used to roughly adjust the scanner motor speed, and it is used at power-on or during last rotation. The BD signal, on the other hand, is a detection signal used to finely adjust the motor speed, and it is used at time of printing.


BD
ACC
DEC
FG
J1104
[2]
[1]
ASIC1(IC29)
DC-CON

F-6-10

1. Motor speed control mechanisms
2. Reference signal generation mechanism

DC-CON: DC controller PCB

Memo:

E110 (scanner motor error)

-0001 the FG signal is not detected a specific period of time after the scanner motor starts up.

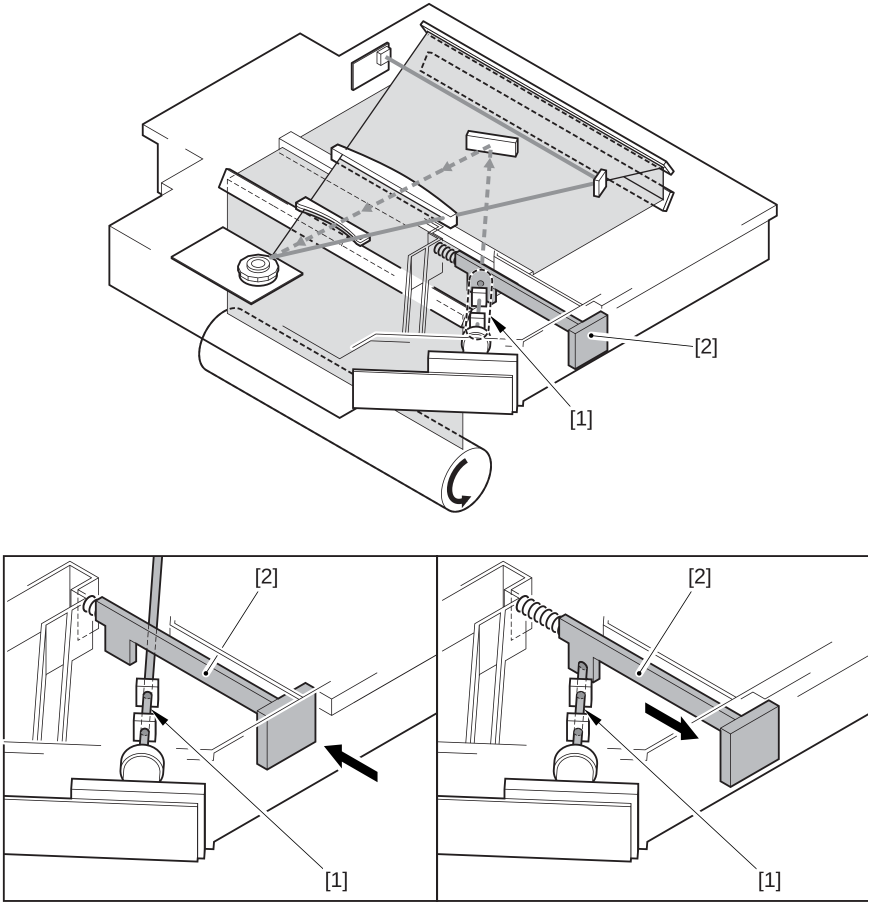
-0002 the FG signal is not detected while the scanner motor is rotating at a constant speed.

6.3.4 Controlling the Laser Shutter

6.3.4.1 Controlling the Laser Shutter

The machine is equipped with a mechanism to protect against exposure of its inside by laser light when the black toner assembly is opened. When the black toner hopper assembly is opened, the protrusion found on the hopper assembly releases the laser shutter, causing the laser shutter to close so that the laser path is closed.

If the DC controller PCB identifies the front cover, right cover, or black toner supply cover as being open, controller PCB forces the laser scanner motor and the laser unit to go off.



F-6-11

1) Laser light

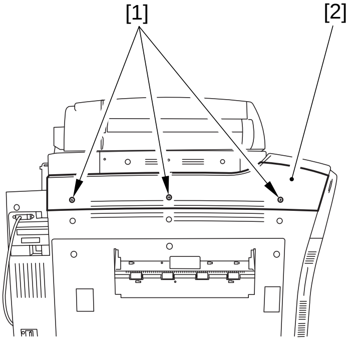
2) Laser shutter

6.4 Parts Replacement Procedure

6.4.1 Laser Scanner Unit

6.4.1.1 Removing the Left Cover (upper)

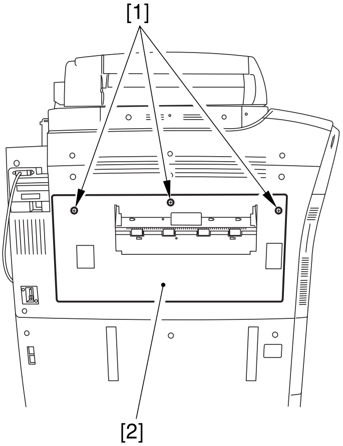
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-6-12

6.4.1.2 Removing the Delivery Cover

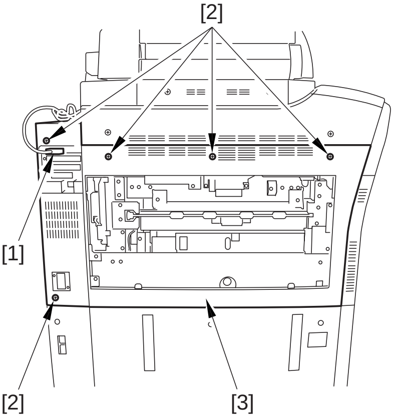
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-6-13

6.4.1.3 Removing the Left Cover (middle)

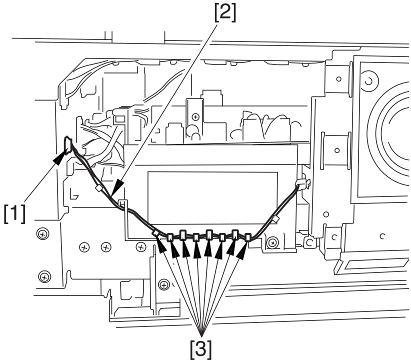
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



F-6-14

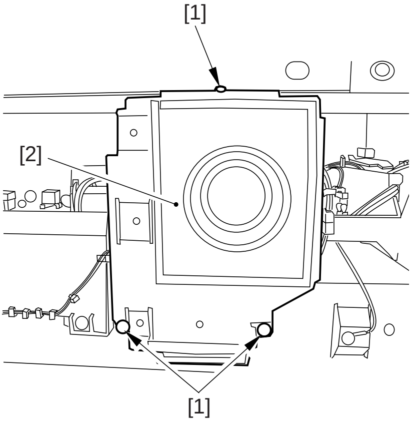
6.4.1.4 Removing the HV2 PCB

1) Disconnect the connector [1], and free the harness [2] from the cable guide [3].



F-6-15

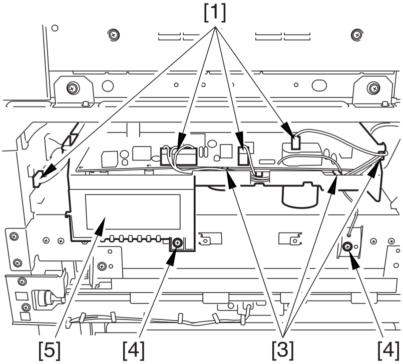
2) Remove the 3 screws [1], and detach the delivery cooling fan [2] together with its base.



F-6-16

3) Disconnect the 5 connectors [1], and free the harness from the cable guide [3].

4) Remove the 2 screws [4], and detach the HV2 PCB [5].

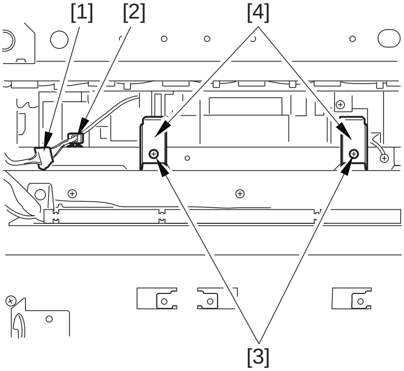


F-6-17

6.4.1.5 Removing the Laser Scanner Unit

1) Disconnect the connector [1], and open the wire guide [2].

2) Remove the 2 screws [3], and detach the 2 locking plates [4].

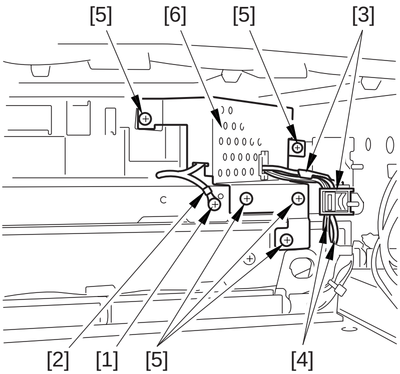


F-6-18

3) Remove the screw [1], and detach the grounding wire [2].

4) Open the wire guide [3], and free the harness [4].

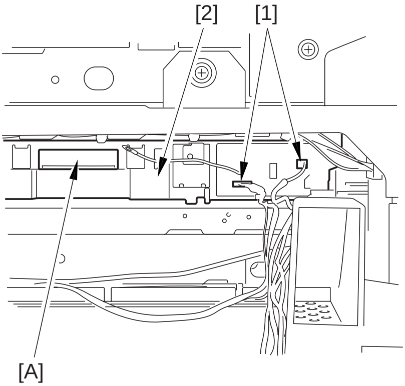
5) Remove the 5 screws [5], and detach the laser driver cover [6].



F-6-19

6) While lifting the area [A], slide out the laser scanner unit [1] slightly.

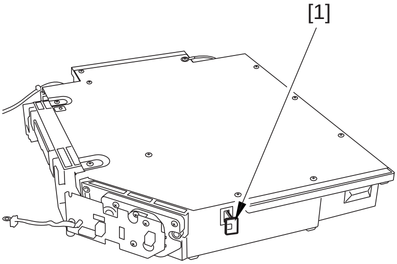
7) Disconnect the 2 connectors [2], and detach the laser scanner unit [1].



F-6-20

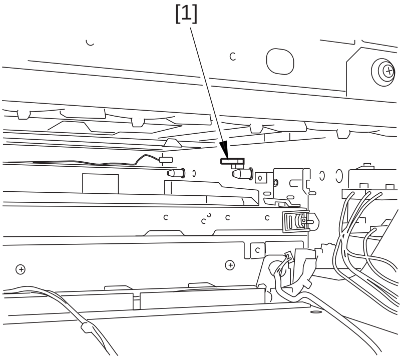
6.4.1.6 Points to Note When Replacing the Laser Scanner Unit

⚠ The laser scanner unit is equipped with a laser shutter [1].



F-6-21

Moreover, the actuator [1] of the laser shutter is mounted to the hopper assembly.



F-6-22

Be sure to keep the hopper assembly open when fitting the laser scanner unit into the machine so that the laser shutter will not interfere with the actuator.

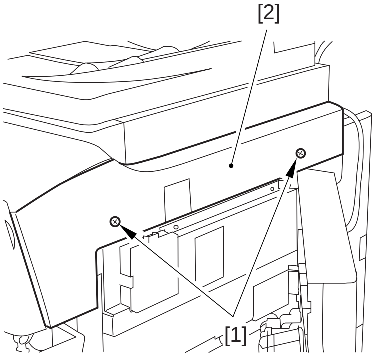
After replacing the laser scanner unit, be sure to go through the following:

1) Make the following selections in service mode, and press the OK key: COPIER>FUNCTION>DPC>DPC.

2) Turn off and then on the main power switch.

6.4.1.7 Cleaning the Laser Scanner Unit

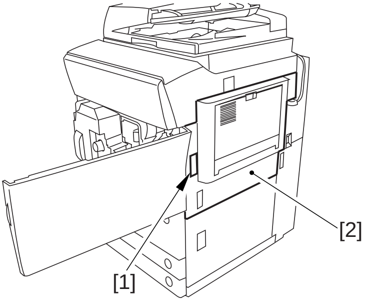
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-6-23

2) Open the front cover.

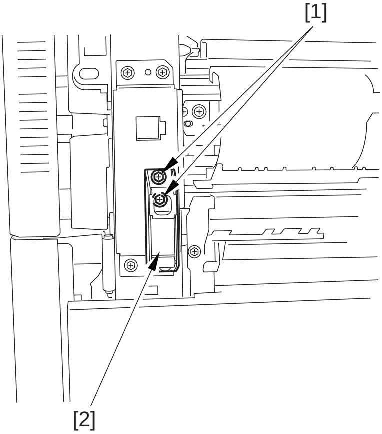
3) By pulling the grip [1] toward the front, fully open the manual feed cover [2].



F-6-24

⚠

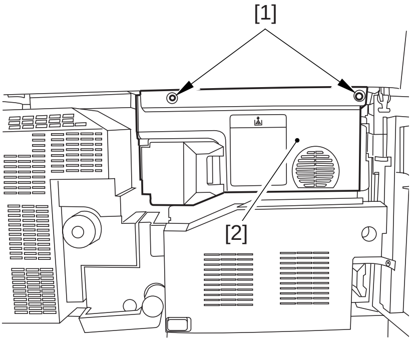
If the machine is equipped with a side paper deck, be sure to remove the 2 screws [1] and detach the latch plate (front) [2] to prevent damage to the surface of th front cover when the cover is released.



F-6-25

4) Slide out the fixing/feeding assembly.

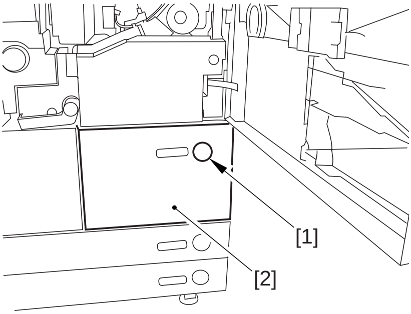
5) Remove the 2 screws [1], and detach the process unit cover [2].



F-6-26

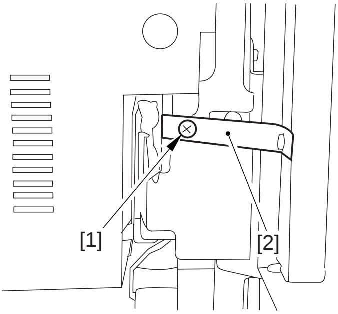
6) Push in the fixing/feeding assembly, and set the lever in position.

7) Press the release button [1] of the right deck, and slide out the right deck [2].



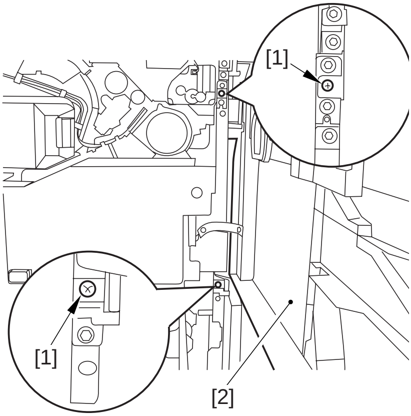
F-6-27

8) Remove the screw [1] from the lower right, and detach the front cover strap [2].



F-6-28

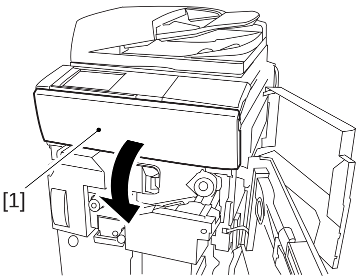
9) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].



F-6-29

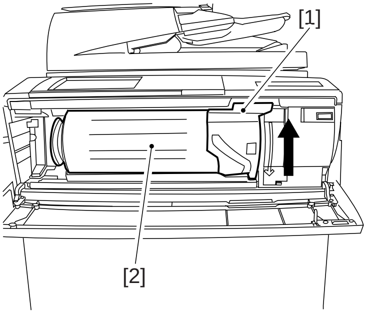
10) Close the right deck.

11) Open the black toner supply cover [1].



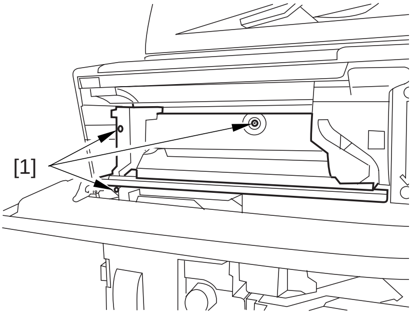
F-6-30

12) Shift down the lever [1], and detach the black toner bottle [2].



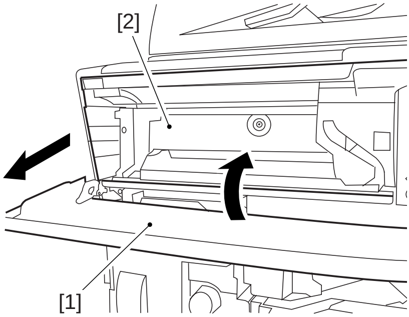
F-6-31

13) Remove the 3 screws [1].



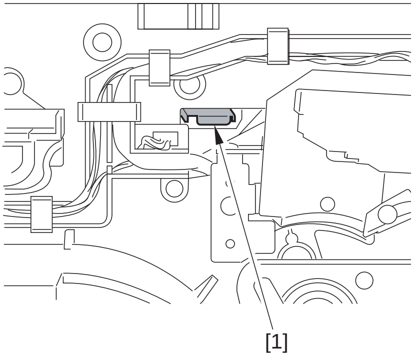
F-6-32

14) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



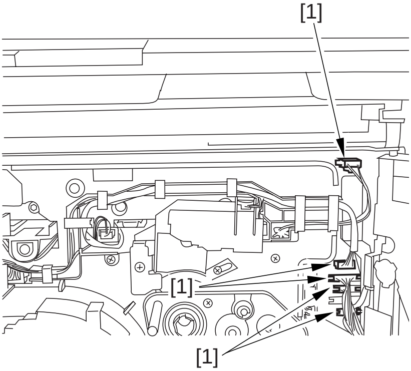
F-6-33

15) Slide out the grip [1] found on the edge of the dust-blocking glass to detach the glass for the machine.



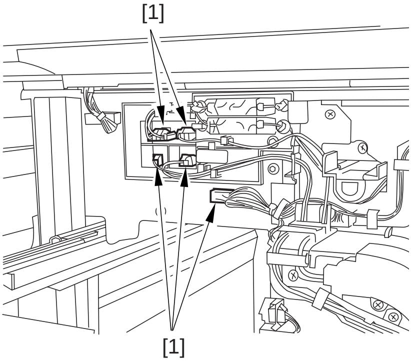
F-6-34

16) Disconnect the 5 connectors [1] from the upper right.



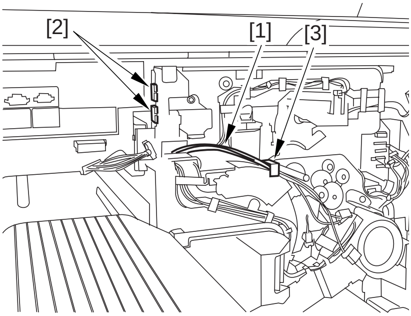
F-6-35

17) Disconnect the 5 connectors [1] from the upper left.



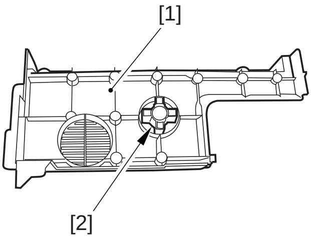
F-6-36

18) When you have freed the high-voltage connector cable [1] from the 2 wire saddles [2], be sure to keep it on the cable hook [3] to avoid trapping it during the work.



F-6-37

19) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

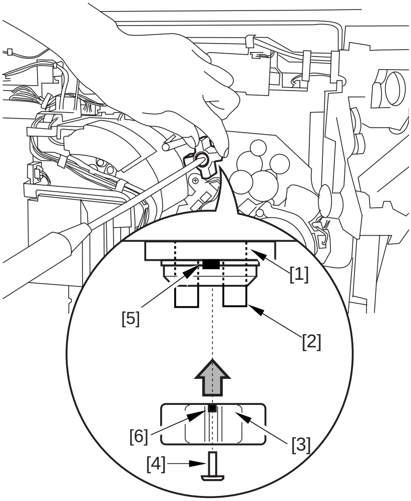


F-6-38

20) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shaft [1], remove the fixing screw [4].

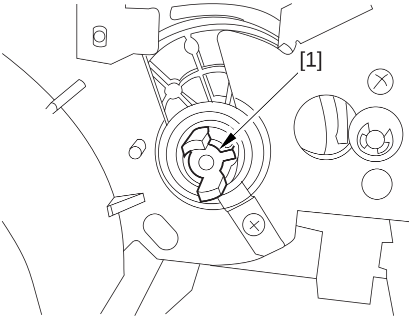
⚠

Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



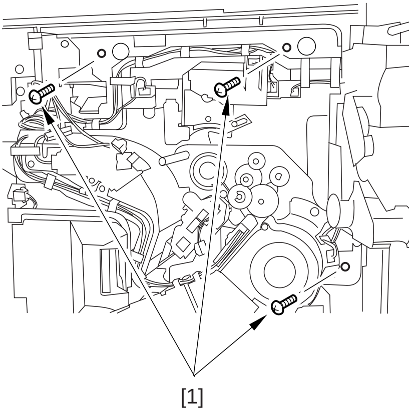
F-6-39

21) Using a pair of precision pliers, remove the drum fixing member [1].



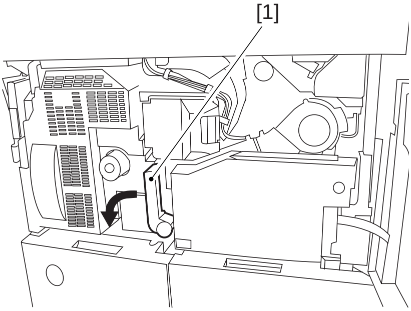
F-6-40

22) Remove the 3 binding screws (M4x8).



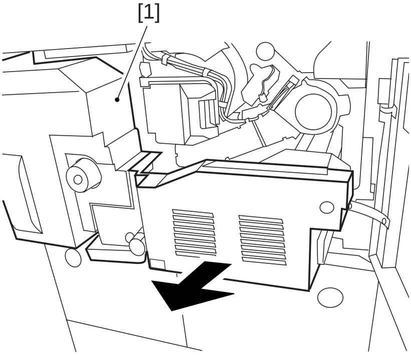
F-6-41

23) Shift down the fixing/feeding releasing lever [1] in the direction of the arrow.



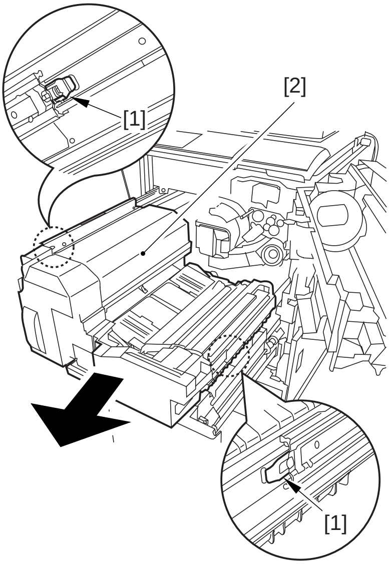
F-6-42

24) Slide o out the fixing/feeding assembly [1].



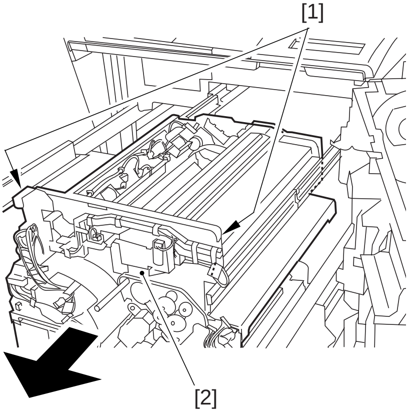
F-6-43

25) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



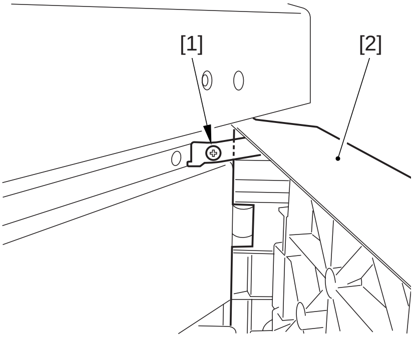
F-6-44

26) While lifting both ends [1] of the process unit slightly, fully slide out the process unit [2] to the front.



F-6-45

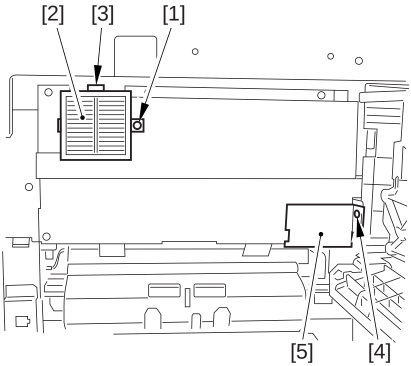
27) Remove the screw [1], and fully open the upper right cover [2].



F-6-46

28) Remove the screw [1], and detach the filter retainer [2] and the filter [3].

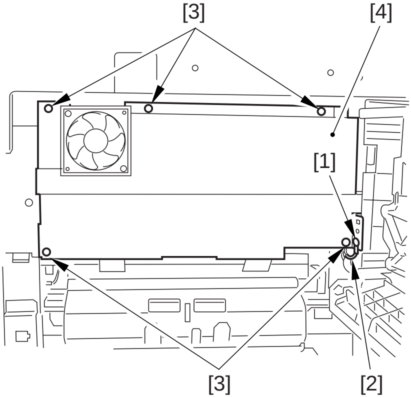
29) Remove the screw [4], and detach the connector cover [5].



F-6-47

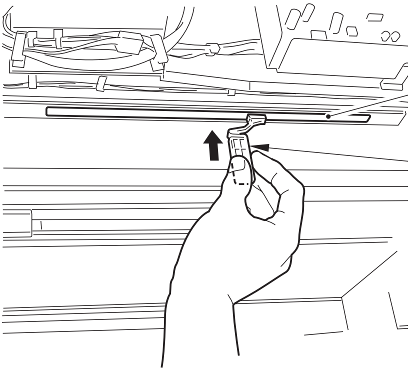
30) Remove the screw [1], and detach the grounding wire [2].

31) Remove the 5 screws [3], and detach th side plate [4].



F-6-48

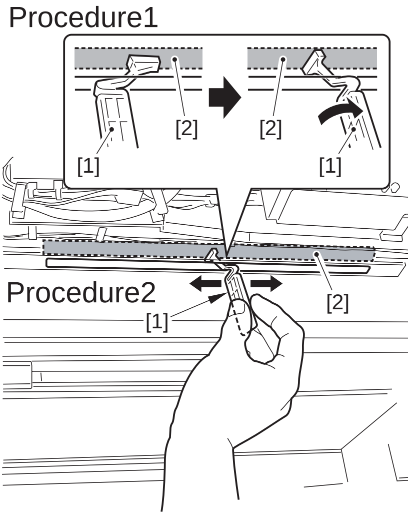
32) While holding the mirror cleaning tool [1] as shown, insert it into the slit [2].



F-6-49

33) Turn the mirror cleaning tool [1] 90 deg clockwise as shown. (step 1)

34) Move the mirror cleaning tool [1] to the front and the rear as shown to clean the laser mirror [2]. (step 2)


Procedure1
[2]
[2]
[1]
[1]
Procedure2
[1]
[2]

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Chapter 7

Image
Formation

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7.1 Construction

7.1.1 Specifications of the Image Formation System

T-7-1

Drum Unit	
Photosensitive drum	
Type of drum	A-Si
Diameter of drum	84 mm
Cleaning mechanism	by blade (in contact)
Speed of process	276 mm/sec

T-7-2

Primary Charging Assembly	
Method of charging	by corona
Method of cleaning	wire auto cleaning

T-7-3

Pre-Exposure system	
Method of exposure	by LED array

T-7-4

Mono Color Developing Assembly	
Diameter of developing cylinder	24.5 mm
Method of development	dry, 1-component
Toner	magnetic, negative
Toner level detection inside developing assembly	yes

Mono Color Developing Assembly

T-7-5

Color Developing Assembly	
Diameter of developing cylinder	20 mm
Method of development	dry, 2-component
Toner	non-magnetic, negative
Toner level detection inside developing assembly	no

T-7-6

Toner Cartridge	
Toner level detection (mono color)	by piezoelectric oscillator sensor
Toner level detection (color)	by optical sensor
Toner amount*	Y: 210g (approx.) M: 210g (approx.) C: 210g (approx.)

Toner Cartridge	
	Bk: 2000g (Bk)

*If color, indicates the amount of developer (toner + carrier).

T-7-7

Intermediate Transfer Assembly	
Component	intermediate transfer belt (ITB)
Source of drive	by drum/ITB motor
Cleaning mechanism	by blade (in contact)

T-7-8

Feed speed	**Mode**	**Paper type**
276 mm/sec	mono color	plain paper, transparency
	color	plain paper
184 mm/sec	color	heavy paper 1 (105 to 163 g)
92 mm/sec	color	heavy paper 2 (163 g or more), transparency

T-7-9

Pre-Transfer Charging Assembly	
Method of charging	by corona
Method of cleaning	wire auto cleaning

Pre-Transfer Charging Assembly

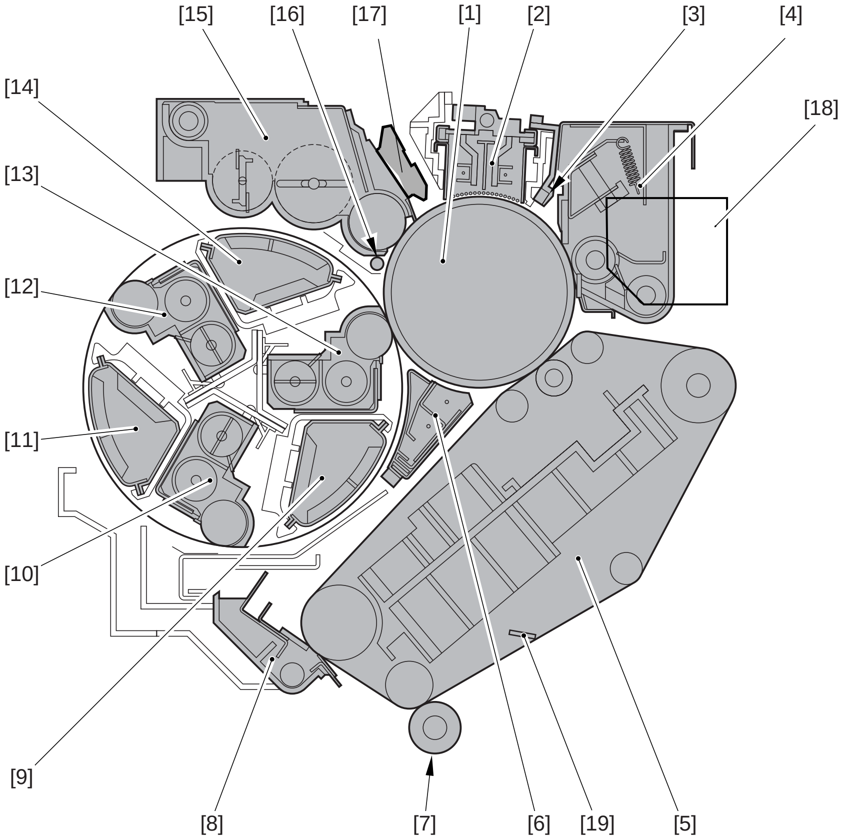
T-7-10

Image Stabilization Control

Item	**Description**
Dmax control	determines best developing bias
ATR control	determines toner supply amount
ATVC control	determines best transfer bias level
Potential control	determines best primary grid bias level
Dhalf control	determines best gradation control (printer)
PASCAL control	determines best gradation table (printer + reader)

7.1.2 Major Components

The following shows the major components associated with the machine' s image formation system:


[15]
[16]
[17]
[1]
[2]
[3]
[4]
[14]
[18]
[13]
[12]
[11]
[10]
[9]
[8]
[7]
[6]
[19]
[5]

F-7-1

1 Photosensitive drum

2 Primary charging assembly

3 Pre-exposure LED

4 Drum cleaner assembly

5 ITB unit

6 Pre-transfer charging assembly

7 Secondary transfer outsider roller

8 ITB cleaner assembly

9 Color toner cartridge (Y)

10 Color developing assembly (Y)

11 Color toner cartridge (C)
12 Color developing assembly (C)
13 Color developing assembly (M)
14 Color toner cartridge (M)
15 Black developing assembly
16 Toner collection roller
17 Potential sensor
18 Black toner hopper
19 ITB inside cleaner end scraper

7.1.3 Charging System

Primary Charging Bias

method of charging: by corona
target of charging: primary charging wire
DC bias level: 6.5kV (1400yA)

Grid Bias

method of charging: by corona
target of charging: grid wire
DC bias level: 800V

Color Developing Bias

method of charging: by roller
target of charging: color developing cylinder
AC bias level: 1.8kV (Vp-p)
DC bias level: 300V

Black Developing Bias

method of charging: by roller
target of charging: black developing cylinder
AC bias level: 1.7kV (p-p)
DC bias level: 290V

Stray Toner Collection Roller Bias

method of charging: by roller
target of charging: toner collection roller
DC bias level: -1.0kV

Pre-Transfer Charging Bias

method of charging: by corona

target of charging: pre-transfer charging wire

AC bias level: 8.3kV (Vp-p)

DC bias level: -1.8kV (-300yA)

Primary Transfer Bias

method of charging: by corona

target of charging: primary transfer roller

DC bias level: 1.0kV

Primary Transfer Static Eliminator Bias

method of charging: charging

target of charging: primary transfer static eliminator

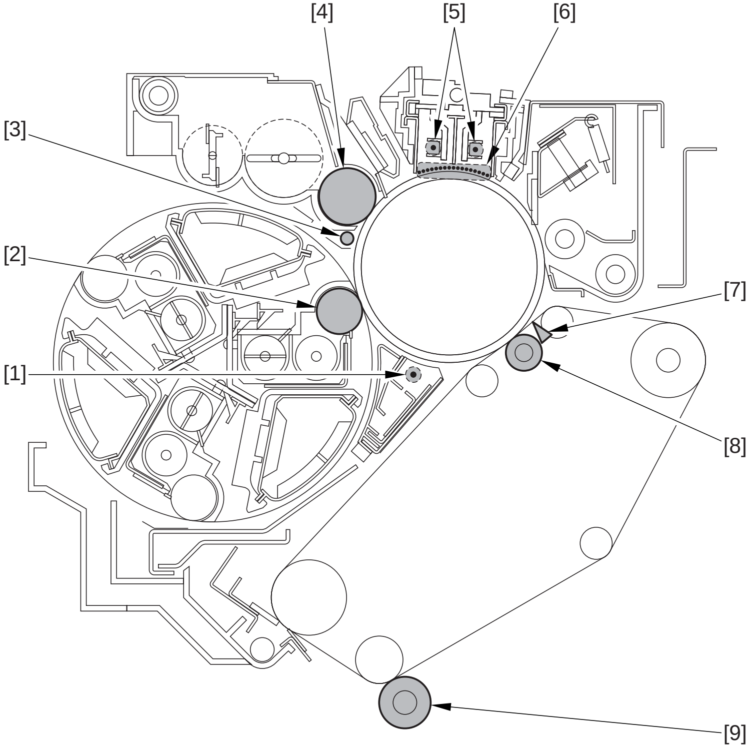
DC bias level: -4.0kV

Secondary Transfer Bias

method of charging: roller charging

target of charging: secondary transfer roller

DC bias level: 3.0kV (at time of cleaning, -3.0kV)



F-7-2

DC bias level: 3.0 kV
(cleaning is -3.0kV)

1 Pre-transfer charging wire
2 Color developing cylinder
3 Stray toner collection roller
4 Black developing cylinder
5 Primary charging wire
6 Grid wire
7 Primary transfer static eliminator
8 Primary transfer roller
9 Secondary transfer outside roller

7.2 Image Formation Process

7.2.1 Image Formation Process

1. Latent Static Image Formation Block

This block consists of 3 steps, at the end of which a latent static image is formed on the photosensitive drum.

Step 1 (pre-exposure) [1]

In preparation for primary charging, the pre-exposure LED shines light on the surface of the photosensitive drum to remove the residual charges from the surface, thus preventing uneven density.

Step 2 (primary charging) [2]

In preparation for laser exposure, the machine charges the surface of the photosensitive drum to an even, positive potential. The machine uses charging method in which charges are indirectly applied to the photosensitive drum by means of a charging wire.

Step 3 (laser exposure) [3]

When the surface of the photosensitive drum is scanned by a laser beam, the charges in the "light" areas become neutralized, turning the areas into a latent static image. (The machine uses a system of laser exposure in which it exposes non-imaging areas with laser light.)

2. Development Block

Step 4 (development) [4]

The machine deposits toner over the latent static image on the photosensitive drum, thus turning the latent image into a visible image. The machine' s black toner is a magnetic 1-component developer while its color toner is non-magnetic 2-component developer; development of both makes is based on toner projection.

3. Transfer Block

In this block, the toner image on the surface of the photosensitive drum is moved to print paper by way of the ITB.

Step 5 (pre-transfer charging) [5]

In full color mode, toner is deposited for all 4 colors on the ITB, with a difference in toner potential if left unattended. A specific level of bias therefore is applied when black is developed for individual colors, thereby making sure that the toner layers on the ITB are of an identical potential, thus increasing the efficiency of primary transfer.

Step 6 (primary transfer) [6]

A positive charge is applied from the back of the ITB to transfer the toner from the surface of the photosensitive drum to the ITB. This process is repeated for all color (M, Y, C, Bk) in sequence.

Step 7 (secondary transfer) [7]

The toner on the ITB is moved to paper.

Step 8 (separation) [8]

Paper is separated from the ITB.

4. Fixing Block

Step 9 (fixing) [9]

The toner is permanently fused into the fibers of the paper by means of heat and pressure.

5. ITB Cleaning Block

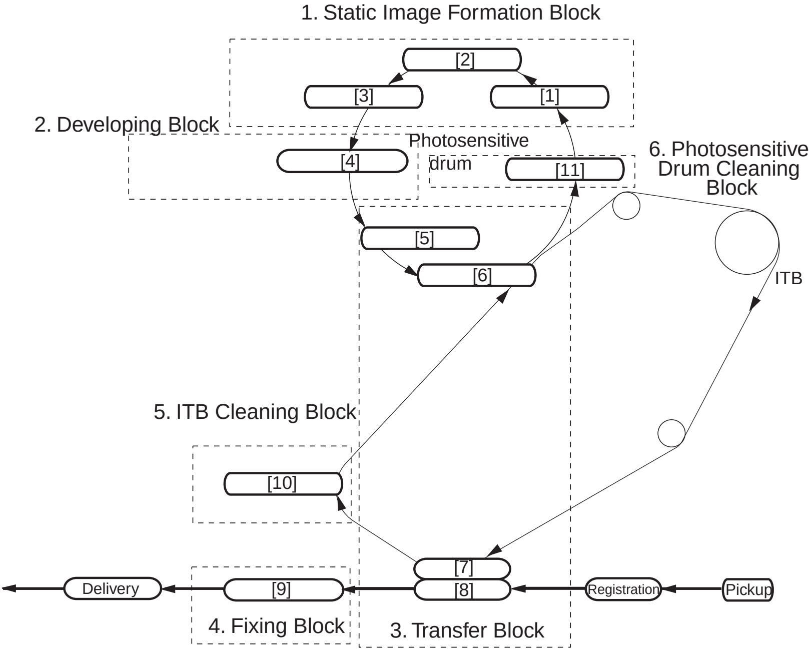
Step 10 (ITB cleaning) [10]

The residual toner is removed from the ITB by way of cleaning the ITB.

6. Photosensitive Drum Cleaning Block

Step 11 (drum cleaning) [11]

The residual toner is removed from the photosensitive drum by way of cleaning the photosensitive drum.


1. Static Image Formation Block
[2]
[3]
[1]
2. Developing Block
Photosensitive drum
[4]
[11]
6. Photosensitive Drum Cleaning Block
[5]
[6]
ITB
5. ITB Cleaning Block
[10]
[7]
Delivery
[9]
[8]
Registration
Pickup
4. Fixing Block
3. Transfer Block

F-7-3

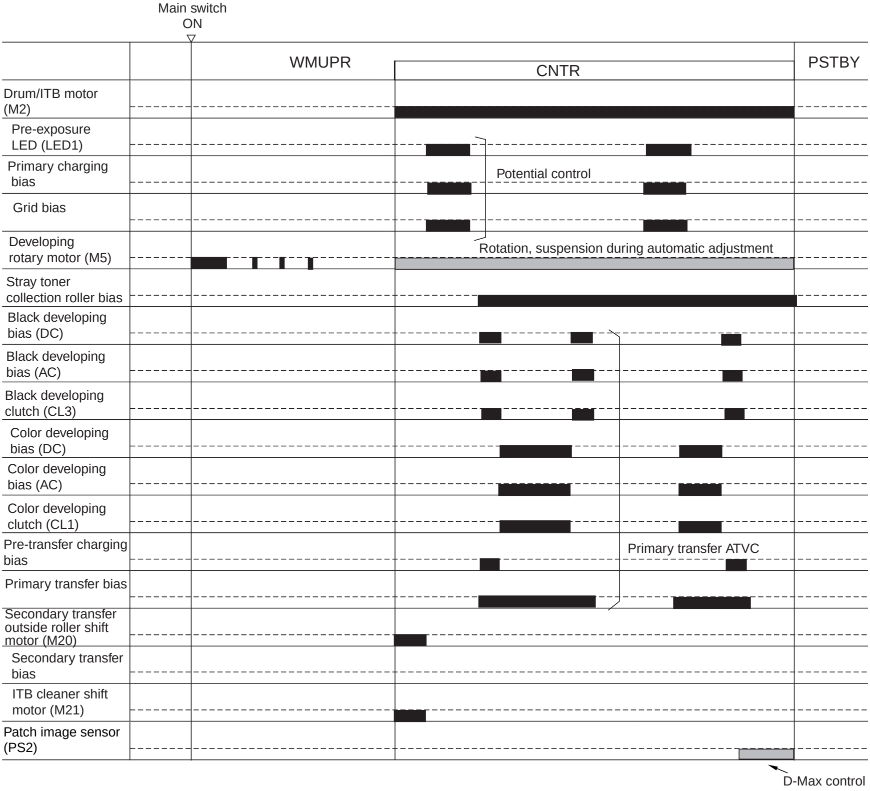
7.3 Basic Sequence

7.3.1 At Time of Power-On

The main power switch is pressed while the surface temperature of the fixing roller is lower than 100 deg C (i.e., the main power switch is pressed after the machine has been left alone for a long time, such as in the morning).

<Characteristics>
- Immediately before starting the sequence, the machine detects the home position of the developing rotary and removes static charges from the drum surface.
- It takes about 530 sec before the machine enters the standby state after its main power switch has been pressed.
- While warm-up rotation is taking place, the machine executes the following image stabilization control mechanisms: potential control, primary transfer ATVC control, secondary transfer ATVC control,D-max control, D-half control*1.

*1: when the power is tuned on with the color print counter reading 500 or higher.


Main switch
ON
WMUPR
CNTR
PSTBY
Drum/ITB motor (M2)
Pre-exposure LED (LED1)
Primary charging bias
Grid bias
Potential control
Developing rotary motor (M5)
Rotation, suspension during automatic adjustment
Stray toner collection roller bias
Black developing bias (DC)
Black developing bias (AC)
Black developing clutch (CL3)
Color developing bias (DC)
Color developing bias (AC)
Color developing clutch (CL1)
Pre-transfer charging bias
Primary transfer ATVC
Primary transfer bias
Secondary transfer outside roller shift motor (M20)
Secondary transfer bias
ITB cleaner shift motor (M21)
Patch image sensor (PS2)
D-Max control

F-7-4

<if the main power switch is turned on with the surface temperature of the fixing roller is 100 deg C or higher>

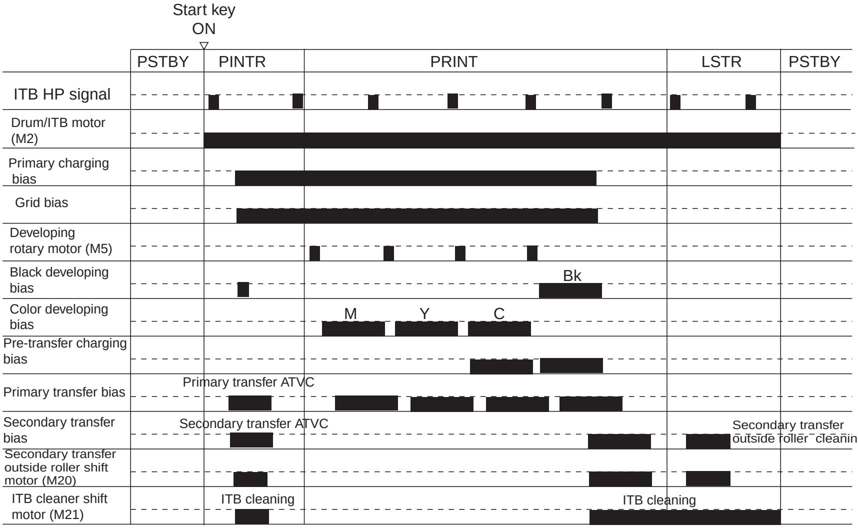
- It takes about 2 min or less before the machine enters the standby state after its main power switch has been pressed (i.e., the surface temperature of the fixing roller reaches 200 deg C).
- In principle, image stabilization control is not executed.

7.3.2 During Copying/Printing (normal speed)

Full-color, Plain paper, A4, 1 Copy/Print

<Characteristics>

- While an image is being formed on the intermediate transfer belt, the machine keeps the ITB cleaning blade and the secondary outside roller away from the belt.


Start key
ON
PSTBY
PINTR
PRINT
LSTR
PSTBY
ITB HP signal
Drum/ITB motor (M2)
Primary charging bias
Grid bias
Developing rotary motor (M5)
Black developing bias
Bk
Color developing bias
M
Y
C
Pre-transfer charging bias
Primary transfer bias
Primary transfer ATVC
Secondary transfer bias
Secondary transfer ATVC
Secondary transfer outside roller cleaning
Secondary transfer outside roller shift motor (M20)
ITB cleaner shift motor (M21)
ITB cleaning
ITB cleaning

F-7-5

⚠

While making mono copies/prints, the machine keeps the ITB cleaning blade and the secondary toner outside roller in contact with the intermediate transfer belt at all times.

7.3.3 During Copying/Printing (2/3 speed, 1/3 speed)

Full-color, Heavy paper or OHP, A4, 1 Copy/Print

<Characteristics>

The machine uses 2/3 speed when it makes full-color prints or uses heavy paper (105 to 163 g). This sequence is basically the same as normal speed sequence, the difference being that the machine reduces the process speed after primary transfer to 2/3, thus increasing fixing on heavy paper.

The machine uses 1/3 speed when it makes full-color prints and uses heavy paper (163 g or more) or transparency. This sequence is also identical to normal speed sequence, the difference being that the machine reduces the process speed to 1/3 speed after primary transfer.

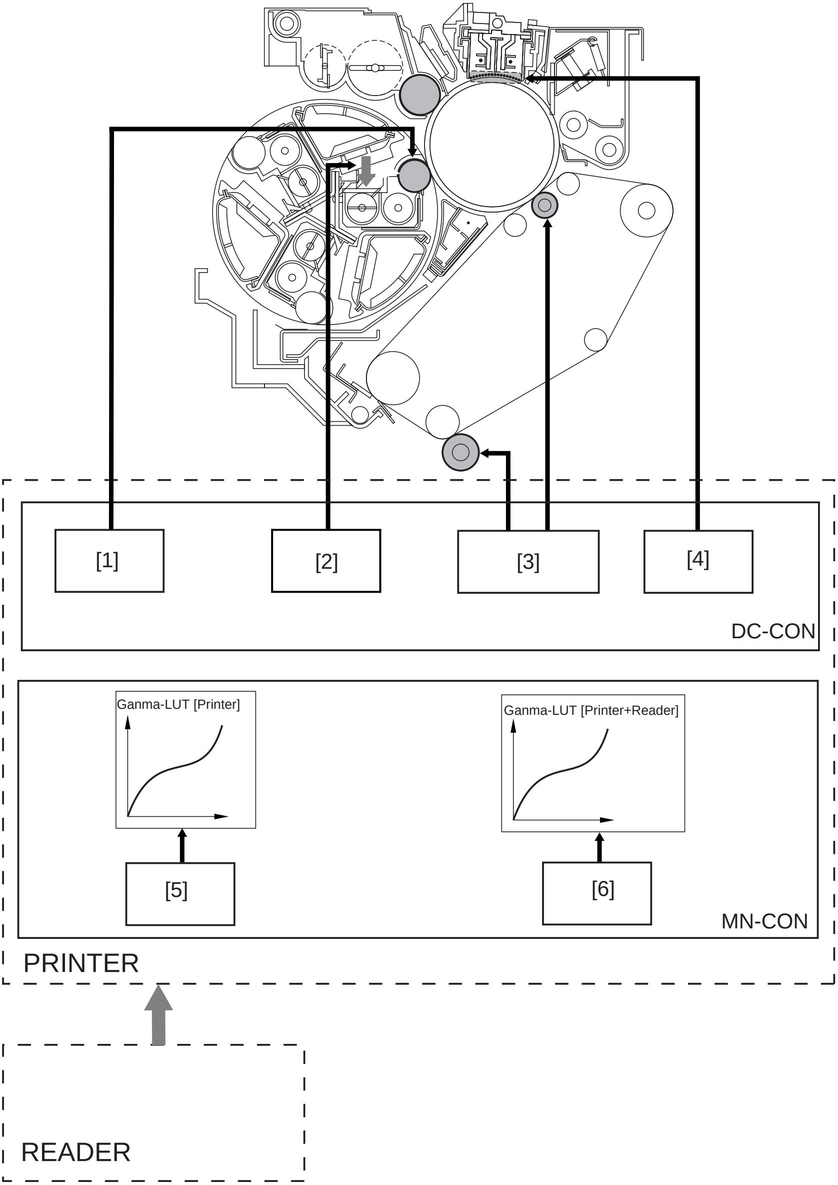
⚠

The machine uses 2/3 speed and 1/3 speed for full-color mode, not for mono color mode.

7.4 Image Stabilization Control

7.4.1 Overview of Image Stabilization Control

The machine is designed to execute the following control mechanisms to be sure of stable image production in the presence of changes in the site environment and deterioration of components associated with image formation over the product life.


[1]
[2]
[3]
[4]
DC-CON
Ganma-LUT [Printer]
Ganma-LUT [Printer+Reader]
[5]
[6]
MN-CON
PRINTER
READER

F-7-6

T-7-11

Item	Description
1 Dmax control	determines the best Color developing bias.
2 ATR control	determines toner supply amounts.
3 ATVC control	determines the best transfer bias level.
4 Potential control	determines the best transfer bias level.
5 Dhalf control	determines the best gradation table (printer).
6 PASCAL control	determines the best gradation table (printer + reader)

7.4.2 Timing of Image Stabilization Control

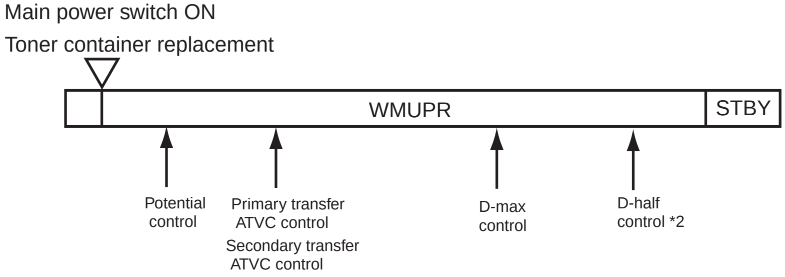
The machine uses different control mechanisms depending on the site environment; specifically, it executes the following as part of different sequences of operation:

- At Power-On / Toner container replacement

The control lasts about 120 sec*1.

*1: The machine executes this control mechanism when the temperature of the fixing upper roller is less than 100 deg C.

*2: The machine executes this control mechanism in response to a history of making 500 or more color prints (with the temperature of the fixing upper roller being less than 100 deg C).


Main power switch ON
Toner container replacement
WMUPR
STBY
Potential control
Primary transfer ATVC control
Secondary transfer ATVC control
D-max control
D-half control *2

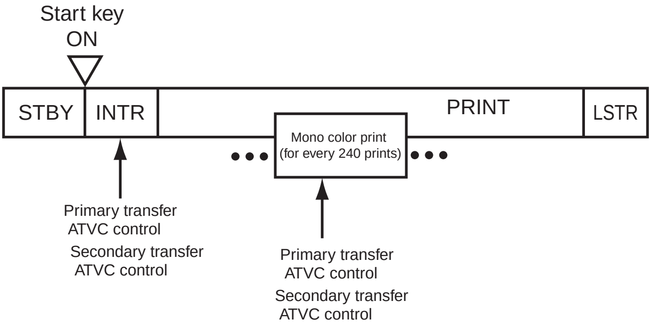
F-7-7

*1: The machine executes the image stabilization control mechanism at power-on or toner container replacement only when the surface temperature of the fixing roller is less than 100 deg C.

*2: The machine executes D-half control when the power is turned on with its color print counter reading 500 or higher (and the temperature of the fixing upper roller being 100 deg C or lower).

- In Response to a Press on the Start Key (mono color)

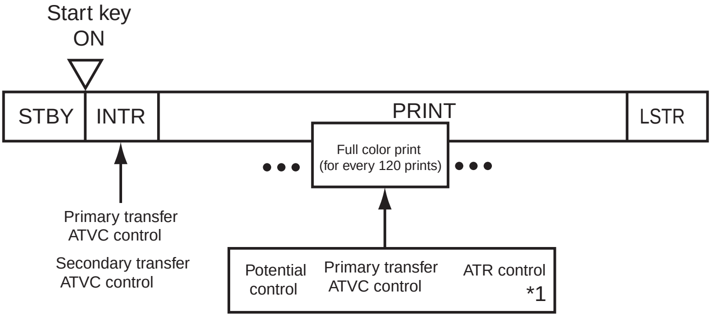
The control lasts about 6 sec.


Start key
ON
STBY
INTR
PRINT
LSTR
Mono color print
(for every 240 prints)
Primary transfer
ATVC control
Secondary transfer
ATVC control
Primary transfer
ATVC control
Secondary transfer
ATVC control

F-7-8

- In response to a Press on the start Key (full color)

The control lasts a maximum of about 80 sec.

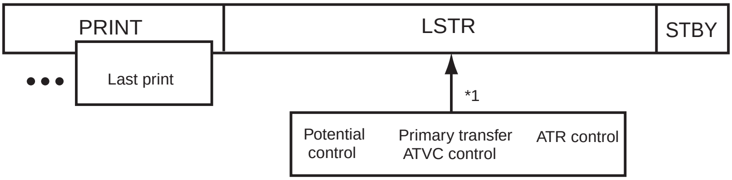

Start key
ON
STBY
INTR
PRINT
LSTR
Full color print
(for every 120 prints)
Primary transfer
ATVC control
Secondary transfer
ATVC control
Potential control
Primary transfer
ATVC control
ATR control
*1

F-7-9

*1: The machine also executes this control mechanism in response to every incidence of an image ratio of 480% (as converted).

- During Last Rotation

The control lasts about 100 sec.

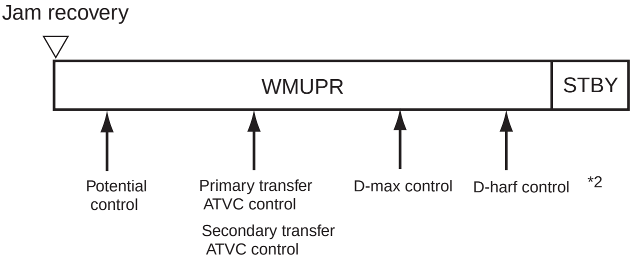

PRINT
LSTR
STBY
Last print
*1
Potential control
Primary transfer ATVC control
ATR control

F-7-10

*1: The machine executes this control mechanism in response to every incidence of an image ratio of 200% or every 20 full-color prints.

- Jam recovery

The control lasts a maximum of about 100 sec.


Jam recovery
WMUPR
STBY
Potential control
Primary transfer ATVC control
Secondary transfer ATVC control
D-max control
D-harf control
*2

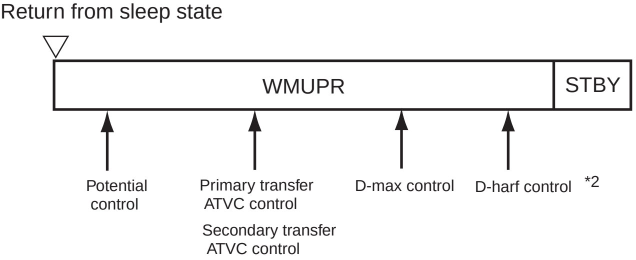
F-7-11

*1: The machine executes this control mechanism when the temperature of the fixing upper roller is less than 100 deg C.

*2: The machine executes this control mechanism in response to a history of making 500 or more color prints (with the temperature of the fixing upper roller being less than 100 deg C).

- Return from sleep state

The control lasts a maximum of about 100 sec.



Return from sleep state
WMUPR
STBY
Potential control
Primary transfer ATVC control
Secondary transfer ATVC control
D-max control
D-harf control
*2

F-7-12

*1: The machine executes this control mechanism when the temperature of the fixing upper roller is less than 100 deg C.

*2: The machine executes this control mechanism in response to a history of making 500 or more color prints (with the temperature of the fixing upper roller being less than 100 deg C).

7.4.3 Potential Control

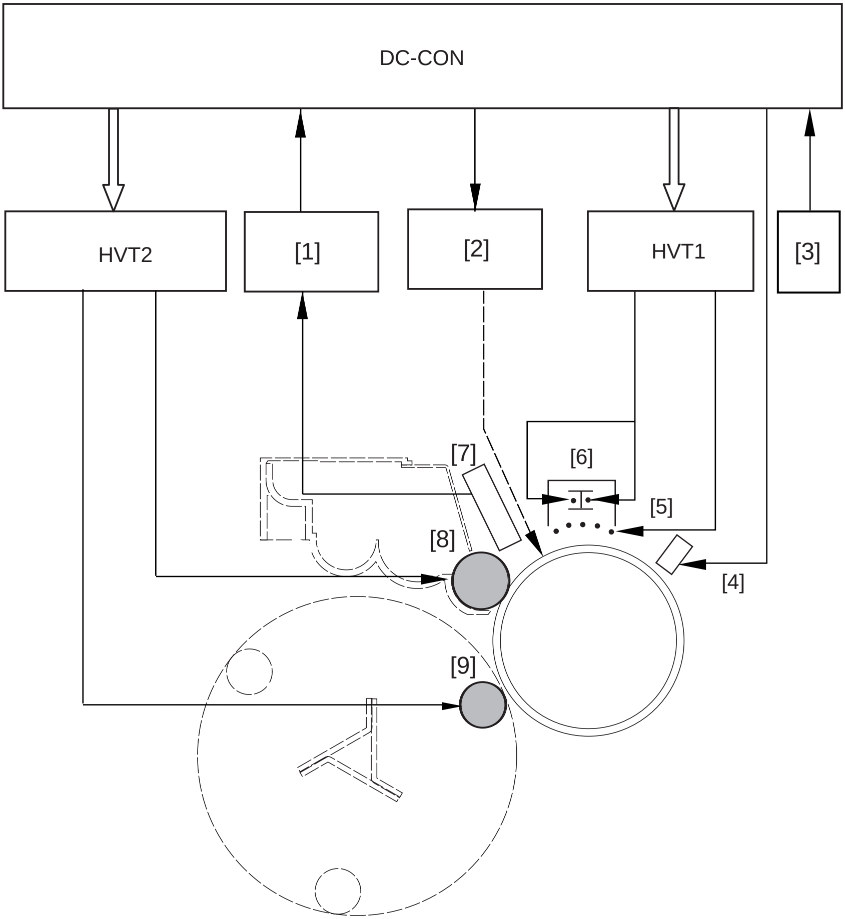
The machine is designed to execute potential control to be sure of stable printing in the presence of drops in the sensitivity of the photosensitive drum or changes in the environment.

<Conditions of Execution>

- when the power is turned on/when the toner cartridge is replaced (with the temperature of the fixing upper roller being less than 100 deg C)
- after jam recovery/after return from a sleep state (with the temperature of the fixing upper roller being less than 100 deg C)
- every 120 full-color prints made continuously (stops printing for execution)
- every 20 full-color prints or during last rotation in response to every incidence of an image ratio of 200% (as converted)
- during execution of PASCAL control
- in response to changes in the environment

<Items of Control>

1. Drum dark-area potential (VD) control
2. Drum light-area potential (VL) control


DC-CON
HVT2
[1]
[2]
HVT1
[3]
[4]
[5]
[6]
[7]
[8]
[9]

F-7-13

1	Potential control PCB
2	Laser driver PCB
3	Environment sensor
4	Pre-exposure LED
5	Grid wire

6 Primary charging wire
7 Potential sensor
8 Black developing cylinder
9 Color developing cylinder

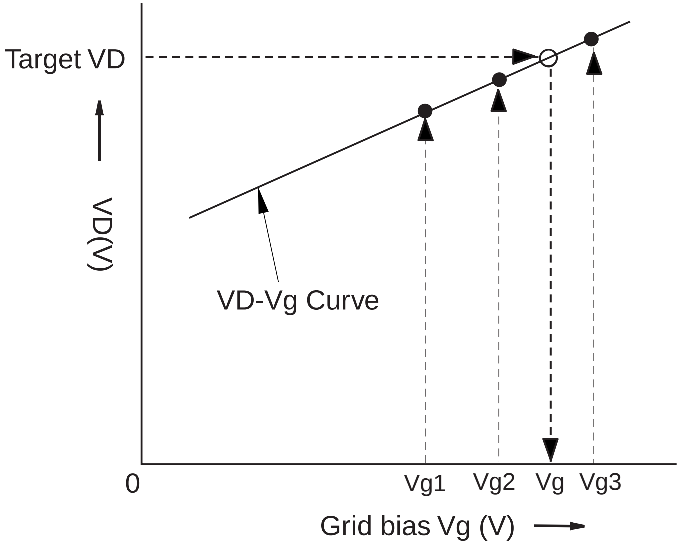
<Particulars of Control>

1. Drum Dark Area Potential Control (VD)

The machine decides on a grid bias (Vg) with the aim of obtaining the best dark area potential (VD) at various points of development (black developing cylinder position, color cylinder position) for the photosensitive drum.

T-7-12

Order	Item	Description
1	Application of Vg	applies Vg (Vg1 through Vg3) to the drum.
2	creation of the target Vd-Vg curve	measures the VD in response to the foregoing Vg (Vg1 through Vg3) using the potential sensor to create a VD-Vg curve.
3	determination of a target Vg	computes the target VD from the output of the environment sensor; then, decides on a target Vg from the target VD.



F-7-14

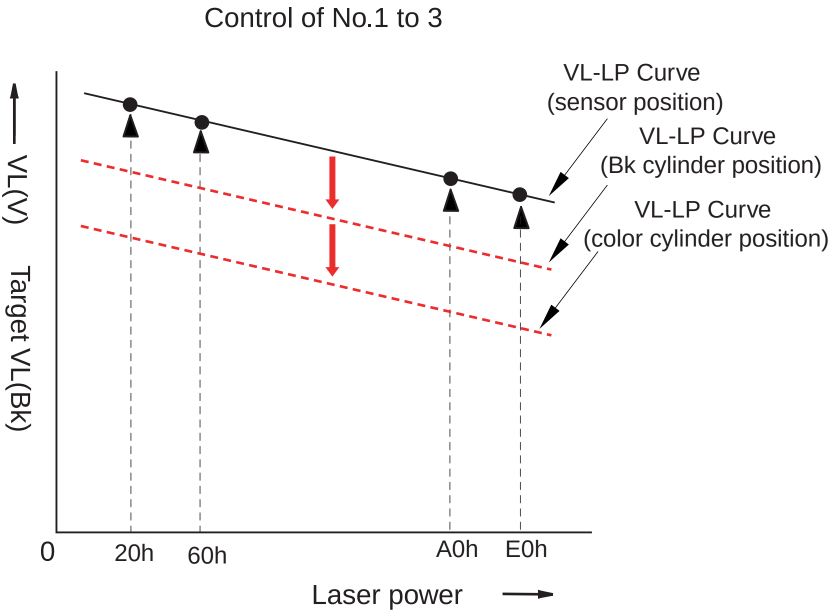
2. Drum Light Area Potential (VL) Control

The machine decides on a laser output level to obtain the best light area potential (VL) for various points of development (developing cylinder position, color cylinder position) for the photosensitive drum.

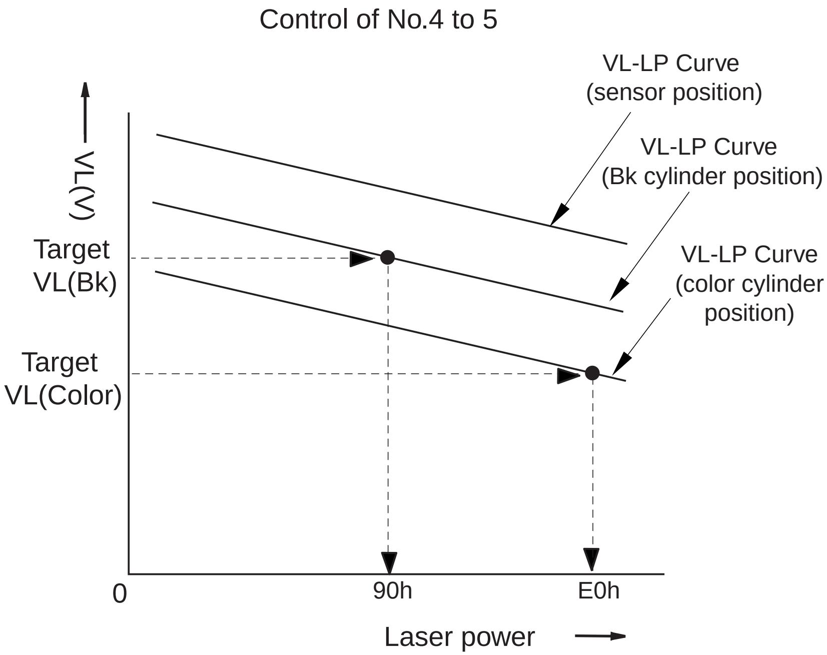
T-7-13

Order	Item	Description
1	activation of laser	shines laser light at a specific laser power level (LP1 thorough LP4) on the drum.
2	creation of a VL-LP curve (sensor position)	measures the VL against the aforementioned laser power level (LP1 through LP4) using the potential sensor, and creates a VL-LP curve for the sensor position.

3	creation of a VL-LP curve (points of black development/color development)	creates a VL-LP curve for points of black and color development based on the result of computation on the VL curve for the sensor position.
4	monitoring of the environment sensor	computes the target VL potential for individual colors based on the output of the environment sensor (target VL (Bk), target VL (color).
5	determination of laser output	determines the laser output that enables the target VL potential for individual colors based on the target VL-LP curve.



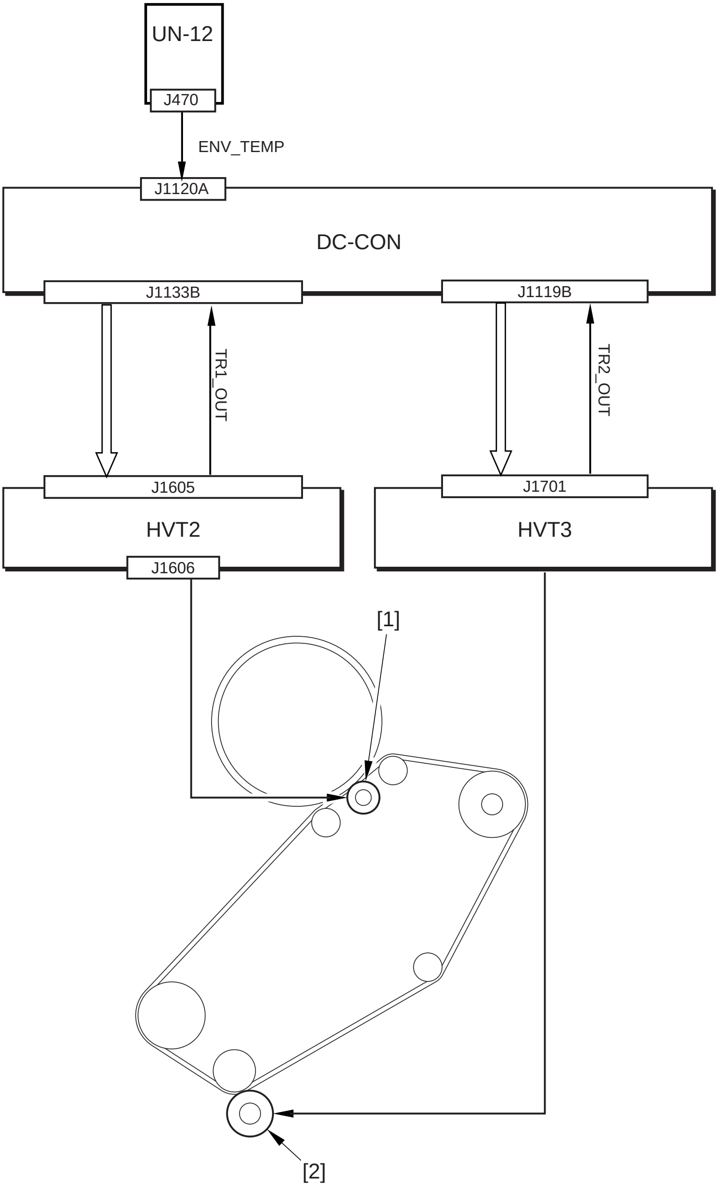
F-7-15



F-7-16

7.4.4 ATVC Control

The machine executes ATVC control to determine the best transfer voltage when transferring toner from the photosensitive drum to the ITB and from the ITB to paper. This control may be of 2 types: primary transfer ATVC and secondary transfer ATVC.


UN-12
J470
ENV_TEMP
J1120A
DC-CON
J1133B
J1119B
TR1_OUT
TR2_OUT
J1605
J1701
HVT2
HVT3
J1606
[1]
[2]

F-7-17

1 Primary transfer roller
2 Secondary transfer outside roller

DC-CON: DC controller
UN-12: environment sensor

1. Primary Transfer ATVC

In primary transfer ATVC, the machine determines the primary transfer voltage so the target transfer current may be obtained at time of transfer.

<Conditions of Execution>

- when the power is turned on/when the toner cartridge is replaced (with the temperature of the fixing upper roller being less than 100 deg C)
- after jam recovery/after return from a sleep state (with the temperature of the fixing upper roller being less than 100 deg C)
- during initial rotation in response to a press on the Start key
- every 120 full-color prints made continuously (stops printing for execution)
- every 240 mono-color prints image continuously (stops printing for execution)
- during last rotation in response to every incidence of an image ratio of 200% or 20 full-color prints made continuously
- during execution of PASCAL
- in response to changes in the environment

<Particulars of Control>

T-7-14

Order	Item	Description
1	application of the primary transfer bias	applies a specific level of bias to the primary transfer roller; then, detects the level of current by HVT2 to feed the data back to the DC controller.
2	monitoring the environment sensor	uses the DC controller to compute the correction value from the output of the environment sensor and the printing information (paper type, color mode).
3	determination of the primary transfer bias	uses the DC controller to determine the best transfer bias while taking into account the correction value.

2. Secondary Transfer ATVC

In secondary transfer ATVC, the machine determines the secondary transfer voltage so that the target transfer current may be obtained at time of transfer.

<Conditions of Execution>

- when the power is turned on/when the toner cartridge is replaced (with the temperature of the fixing upper roller being less than 100 deg C)
- after jam recovery/after return from a sleep state (with the temperature of the fixing upper roller being less than 100 deg C)
- during initial rotation in response to a press on the Start key
- every 120 full-color prints made continuously (stops printing for execution)
- every 240 mono-color prints image continuously (stops printing for execution)
- during execution of PASCAL
- in response to changes in the environment

<Particulars of Control>

T-7-15

Order	Item	Description
1	application of secondary transfer bias	applies a specific level of bias to the secondary transfer roller; then, uses HVT3 to detect the level of current and feeds the data back to the DC controller.
2	monitoring of the environment sensor	uses the DC controller to compute the correction value from the output of the environment sensor and the printing information (paper type, 1st-side/2nd-side).
3	determination of the secondary transfer bias	uses the DC controller to determine the best secondary transfer bias while taking the correction value into account.

7.4.5 ATR Control

The machine executes ATR control to compute the amount of toner to supply to the color developing assembly based on the amount of toner it has used.

<Particulars of Control>

- Computing the Amount of Toner to Supply

The machine determines the amount of toner to supply to individual color developing assemblies.

The following are particulars of individual operations:

<Particulars of Operation>

- Computing the Amount of Toner to Supply

The machine determines the amount of toner to be supplied to individual color developing assemblies. The machine uses 3 types of data to make these computations.

1. video count (executed for every color print)

The machine uses the video count data to predict the amount of toner likely to be consumed, and computes the amount of toner consumed.

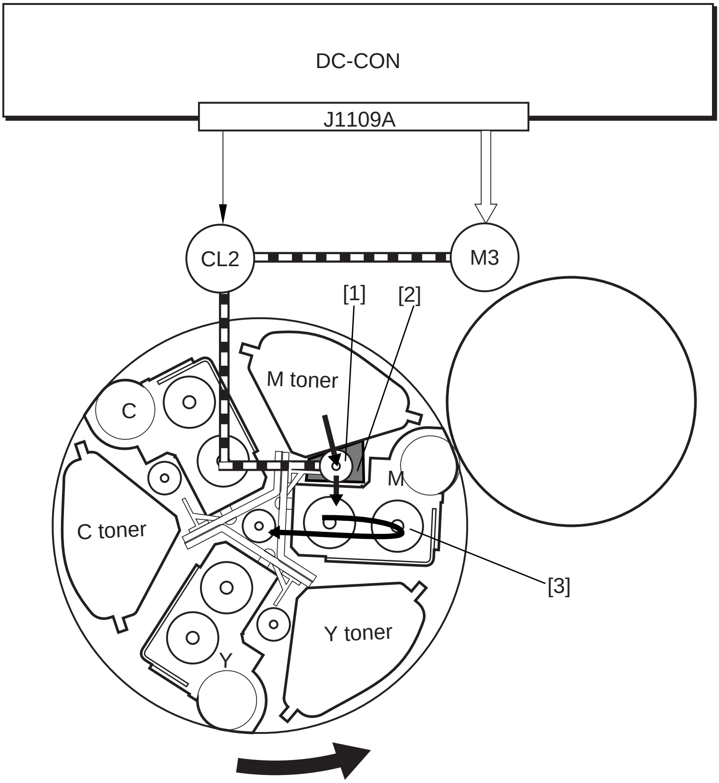
2. result of detection by the patch image read sensor (in response to an image ratio of 480%, as converted or 60 color prints made continuously*1)

The machine uses the patch image read sensor to measure the toner image created on the ITB, and imposes correction on the amount of toner to be supplied so that the density will be identical to the target density.

3. result of detection by the ATR sensor (executed for every 10 color prints)

The machine uses the ATR sensor to measure the developer on the cylinder of each color developing assembly, and increases/decrease the toner supply target if the measurement is outside of the target density range.

*1: when this condition occurs, the machine stops the ongoing job and forms a patch on the intermediate transfer belt for detection by the patch image read sensor.


DC-CON
J1109A
CL2
M3
[1]
[2]
M toner
C
M
C toner
[3]
Y toner
Y

F-7-18

1 Video count

2 Result of detection by patch image read sensor

3 Result of detection by ATR sensor

PS4: ATR sensor

PS2: patch image read sensor

DC-CON: DC controller

MN-CON: main controller

⚠

E020-xx10:

the SGNL value for INIT control is lower than 62.

E020-xx11:

the REF value for INIT control at time of initial setup is lower than 62.

E020-xx12:

the SGNL value for INIT control at time of initial setup is 960 or higher.

E020-xx13:

the REF value for INIT control at time of initial setup is 960 or higher.

E020-xx81:

the P-SENS-P value at time of reading the background (drum surface) for patch detection is lower than 255.

E020-xx90:

the result of computation by patch reading for patch detection is lower than 16.

E020-xx91:

the result of computation by patch reading for patch detection is 1008 or higher.

E020-xx92:

the result of computation by patch reading for patch detection is lower than 42 for 3 times continuously.

E020-xx93:

the result of computation by patch reading for patch detection is 522 or higher for 3 times continuously.

E020-xxA0:

the SGNL value for ATR control is lower than 62.

E020-xxA1:

the REF value for ATR control is lower than 62.

E020-xxA2:

the SGNL value for ATR control is 960 or higher.

E020-xxA3:

the REF value for ATR control is 960 or higher.

E020-xxA8:

the upper limit (13%) of the T/D ratio detected for ATR control is exceeded 3 times continuously.

E020-xxA9:

the lower limit (3%) of the T/D ratio detected for ATR control is not reached 3 times continuously.

E020-xxC0:

the variation among the SGNL values for ATR is 100 or higher.

E020-xxC1:

the variation among the REF values for ATR is 100 or higher.

E020-xxC2:

the variation among the SGNL values for patch detection is 400 or higher.

E020-xxD0:

the average of the SGNL values for INIT control at time of initial setup is 200 or lower.

E020-xxD1:

the average of the REF value for INIT control at time of initial setup is 200 or lower.

E020-xxD2:

the average of the patch detection (SGNL) values for INIT control at time of initial setup is 200 or lower.

E020-xxD4:

the average of the SGNL value for INIT control at time of initial setup is 800 or higher.

E020-xxD5:

the average of the REF values for INTI control at time of initial setup is 562 or higher.

E020-xxDA:

the variation among the REF values for INTI control at time of initial setup is 100 or higher.

E020-xxDB:

the variation among the REF values for INTI control at time of setup is 10 or higher.

E020-xxDC:

the variation among the patch detection (SGNL) values for INTI control at time of initial setup is 800 or higher.

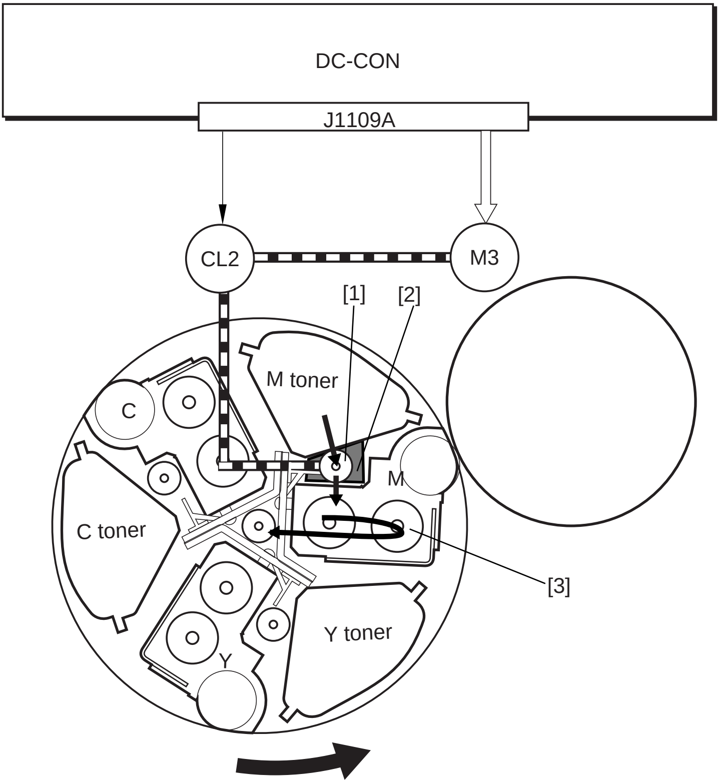
The suffix xx of any of the foregoing error codes indicates the color developing assembly in question:

xx=00: no distinction by color
01=Y
02=M
03=C

7.4.6 ACR Control (Auto Carrier Refresh Control)

The machine's ACR control is designed to prolong the life of the color developing assemblies by feeding the developing assemblies with a fresh supply of toner (mix of resin dye and magnetic iron) while discharging deteriorating carrier from the assemblies.

A new supply of toner is sent to a color developing assembly from its buffer assembly when the feedscrew inside the buffer assembly rotates (the DC controller turns on the development motor (M3) and the color toner supply clutch (CL2) when a shortage of toner is expected.) Once inside the developing assembly, the toner is moved forward by the feedscrew inside it; the deteriorating carrier in the assembly, on the other hand, is discharged outside the assembly, falling on its own weight for collection in the waste toner case.



F-7-19

1 Toner feedscrew
2 Buffer assembly
3 Color developing assembly

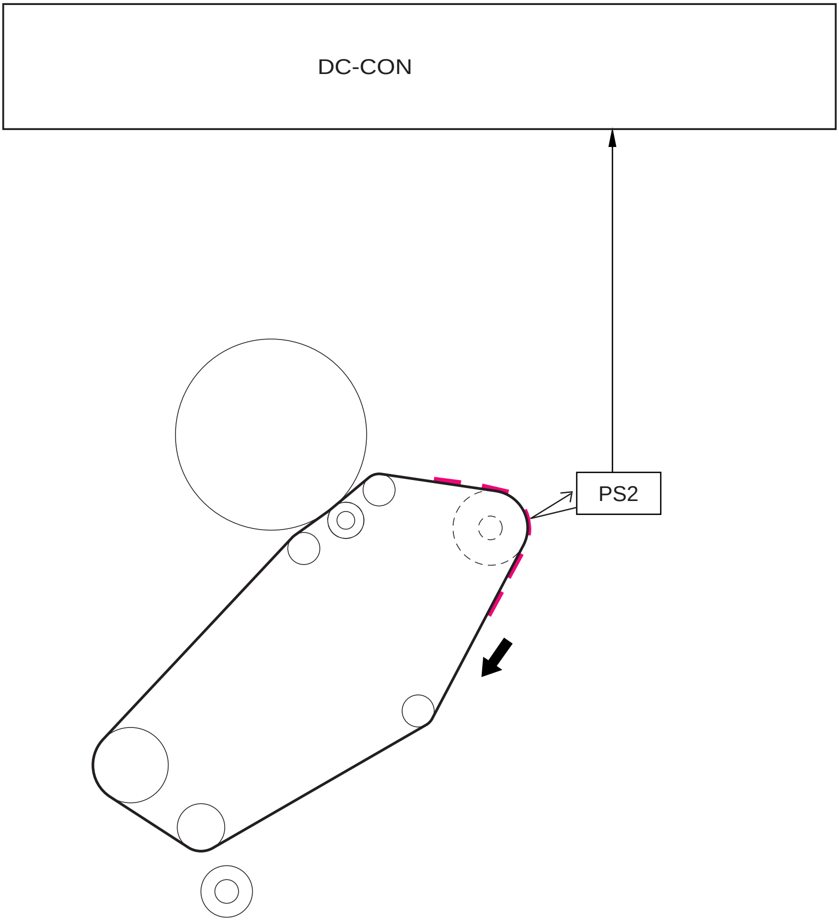
M3: development motor
CL2: toner supply clutch
DC-CON: DC controller

7.4.7 D-max Control

The machine executes D-max (image density correction) control so as to limit fluctuations in the image density caused by changes in the environment or deterioration of the photosensitive drum or of toner.
The machine uses the DC controller of the printer unit for the control. When specific conditions exist, the DC controller creates a patch pattern of individual colors (Y, M, C) on the ITB; then, it uses the patch image sensor (PS2) to measure the density of the patches to determine a developing bias that will bring about a desirable density for each color.

The machine executes D-max control for the following conditions:
- when the power is turned on/when the toner cartridge is replaced (with the temperature of the fixing upper roller being less than 100 deg C)
- after jam recovery/after return from a sleep state (with the temperature of the fixing upper roller being less than 100 deg C)
- during last rotation every 200 full-color prints*1
- during execution of PASCAL
- in response to changes in the environment

1: Perform this condition until it becomes 4000-page printing in total. And after 4000 pages is not performed.



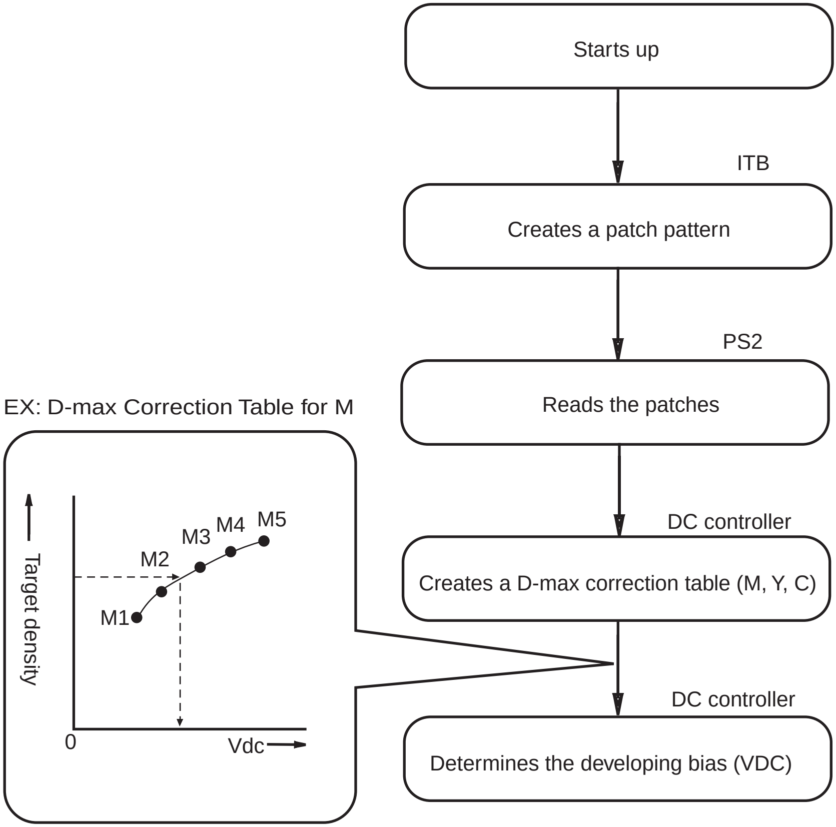
F-7-20

PS2: patch image sensor

DC-CON: DC controller

<Flow of Operations>

The following shows the flow of operations executed under this control:


Starts up
ITB
Creates a patch pattern
PS2
Reads the patches
DC controller
Creates a D-max correction table (M, Y, C)
DC controller
Determines the developing bias (VDC)
EX: D-max Correction Table for M
Target density
M1
M2
M3
M4
M5
0
Vdc

F-7-21

7.4.8 D-half Control

The machine executes D-half control (image gradation correction control) to bring about an ideal set of gradation characteristics.

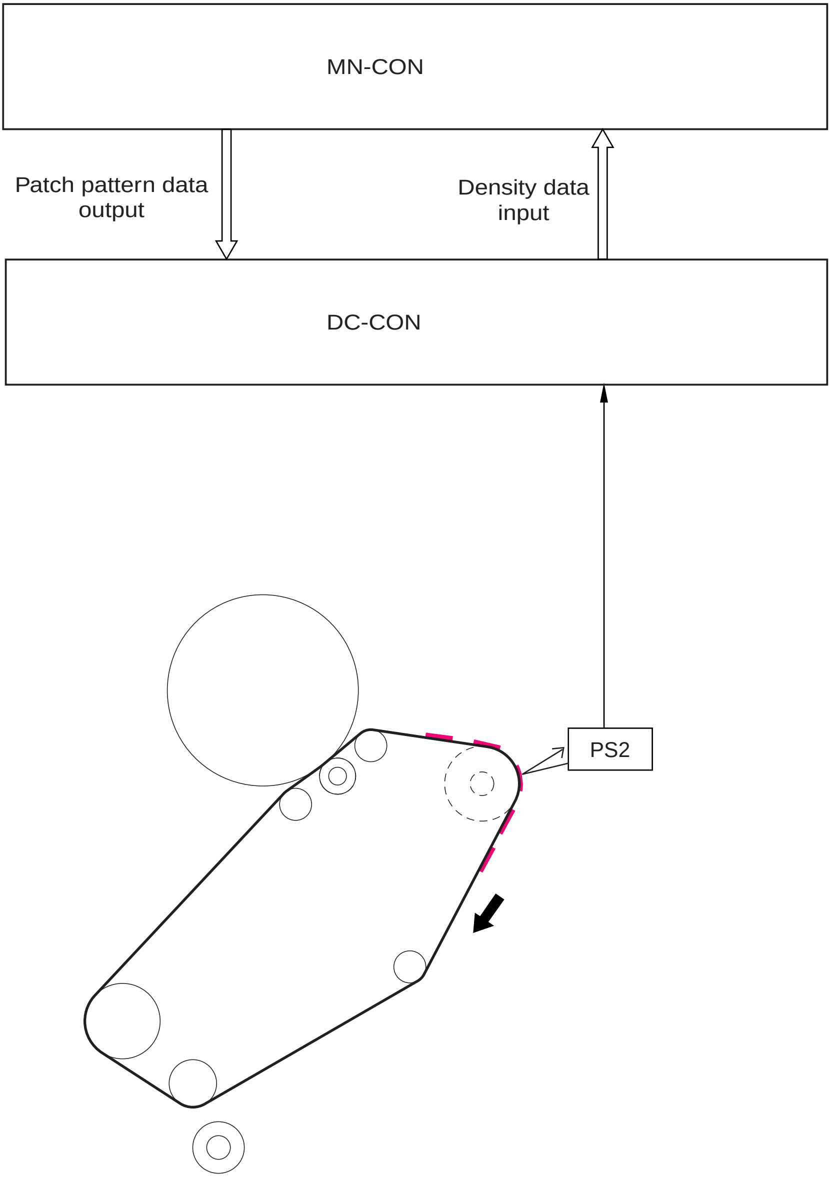
When specific conditions exist, the main controller sends patch pattern data for individual colors (Y, M, C, Bk) to the DC controller, which in response forms patch patterns of individual colors (Y, M, C, Bk) on the ITB.

Thereafter, the DC controller measures the density of the patch pattern using the patch image read sensor (PS2), and sends the result to the main controller, where gradation correction is executed so that ideal halftone images may be obtained.

The machine executes D-half control for the following:

- when the power is turned on/when the toner cartridge is replaced*1
- after jam recovery/after return from a sleep state*1
- in response to changes in the environment
- during execution of PASCAL

*1: if there is a history of 500 or more full-color prints with the temperature of the fixing upper roller being less than 100 deg C.


MN-CON
Patch pattern data output
Density data input
DC-CON
PS2

F-7-22

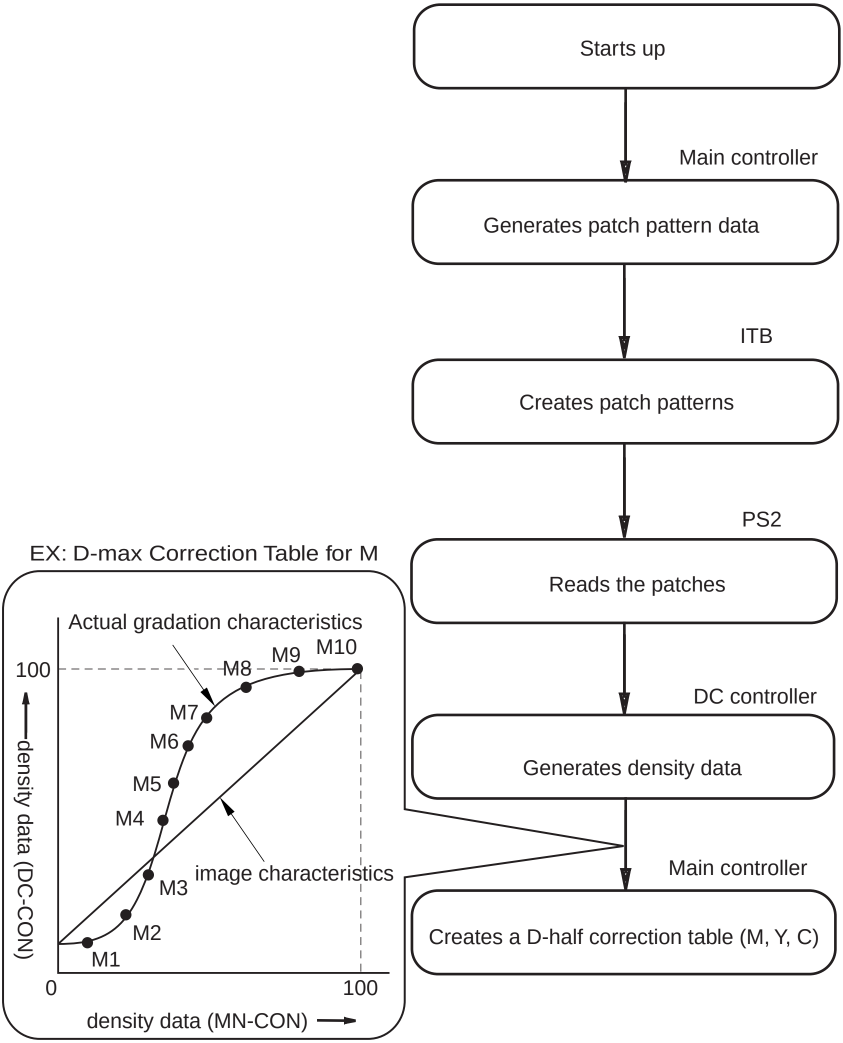
PS2: patch image read sensor

DC-CON: DC controller

MN-CON: main controller

<Flow of Operation>

The following shows the flow of operation that takes place during the control:


Starts up
Main controller
Generates patch pattern data
ITB
Creates patch patterns
PS2
Reads the patches
DC controller
Generates density data
Main controller
Creates a D-half correction table (M, Y, C)
EX: D-max Correction Table for M
Actual gradation characteristics
image characteristics
M1
M2
M3
M4
M5
M6
M7
M8
M9
M10
100
0
100
density data (DC-CON)
density data (MN-CON)

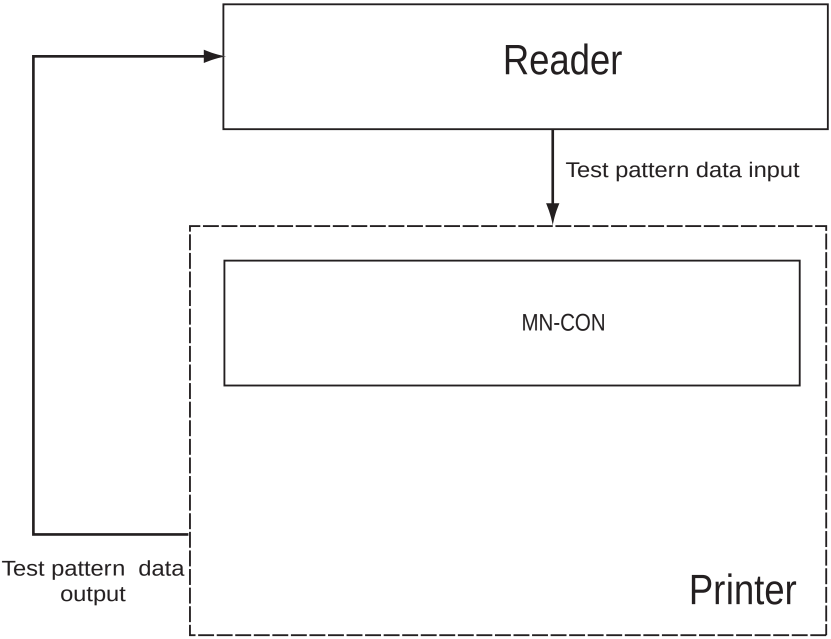
F-7-23

7.4.9 PASCAL control

The machine is designed to execute PASCAL control (image characteristics correction control) to enable the reproduction of ideal image characteristics, and the execution involves the reader unit mechanisms.

The machine uses the main controller of the printer unit for the control. The printer uses the data stored in the main controller to generate 3 types of test patterns ***1**; when the printouts of the test patterns are placed in the reader unit one after another, the machine reads them in sequence to enable the main controller to execute gradation correction that will lead to ideal image characteristics.

The machine executes PASCAL control for the following conditions:
- in response to a command by the ser

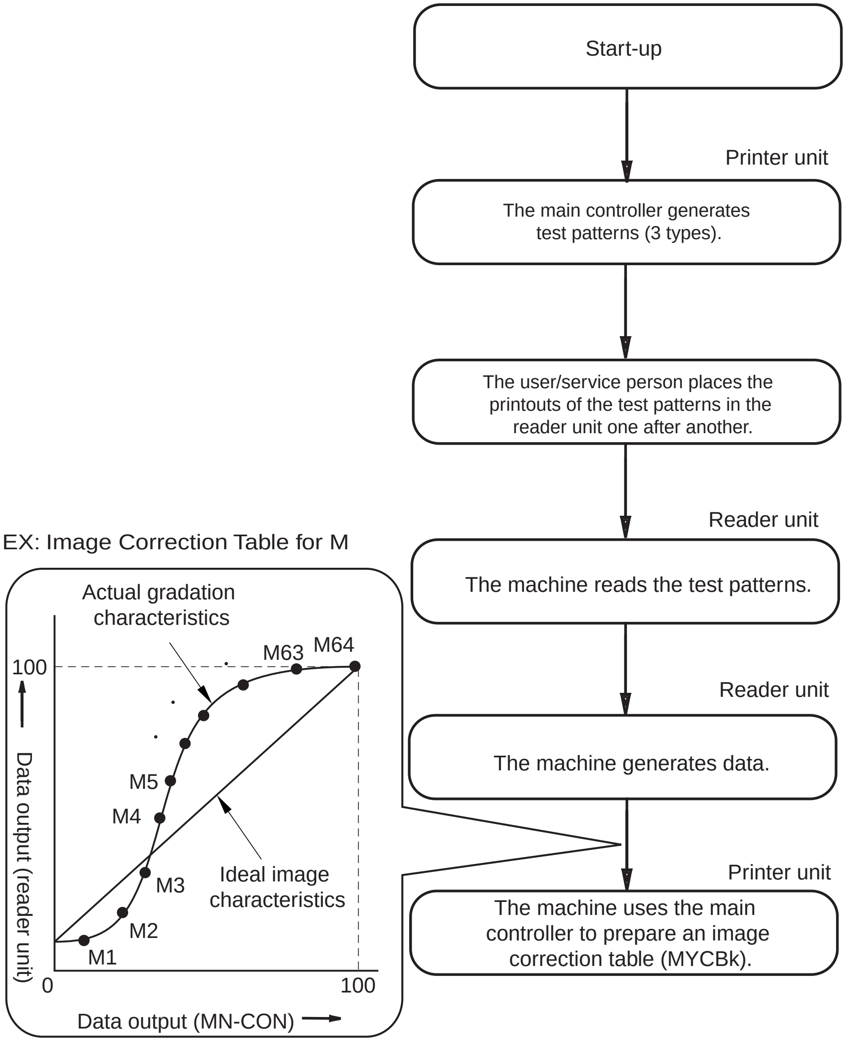


F-7-24

NM-CON: main controller

<Flow of Operation>

The following shows the flow of operation that takes place during the control:


Start-up
Printer unit
The main controller generates test patterns (3 types).
The user/service person places the printouts of the test patterns in the reader unit one after another.
Reader unit
The machine reads the test patterns.
Reader unit
The machine generates data.
Printer unit
The machine uses the main controller to prepare an image correction table (MYCBk).
EX: Image Correction Table for M
Actual gradation characteristics
100
M63
M64
M5
M4
M3
M2
M1
Ideal image characteristics
Data output (reader unit)
0
100
Data output (MN-CON)

F-7-25

*1: Differences Among 3 Test Patterns

- Test Print 1

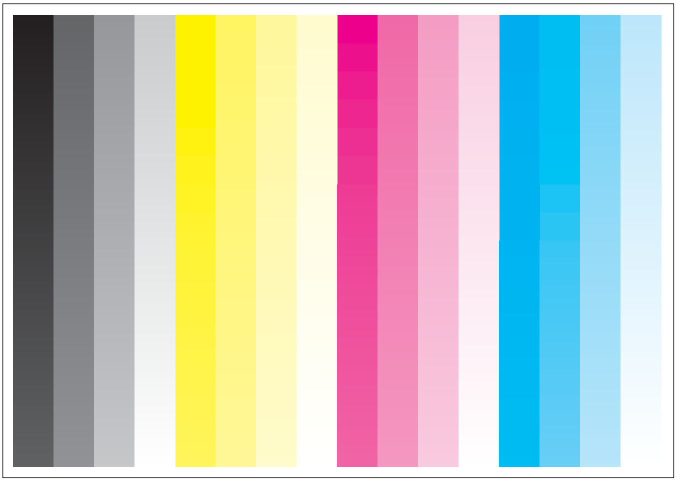
It shows 64 gradations expressed by means of error diffusion processing, which is not subject to moire and, therefore, used in text/photo/map, print photo, and text mode.

- Test Print 2

It shows 64 gradations expressed by means of screening with a low num-ber of lines, which is suitable for the expression of gradation and, there-fore, is used for print film photo mode and when priority is placed on PDL.

- Test Print 3

It shows 64 gradations expressed by means of screening with a high number of lines, which is suitable for the achievement of a high resolu-tion and is, therefore, used when priority is placed on PDL resolution.



Test Print

F-7-26

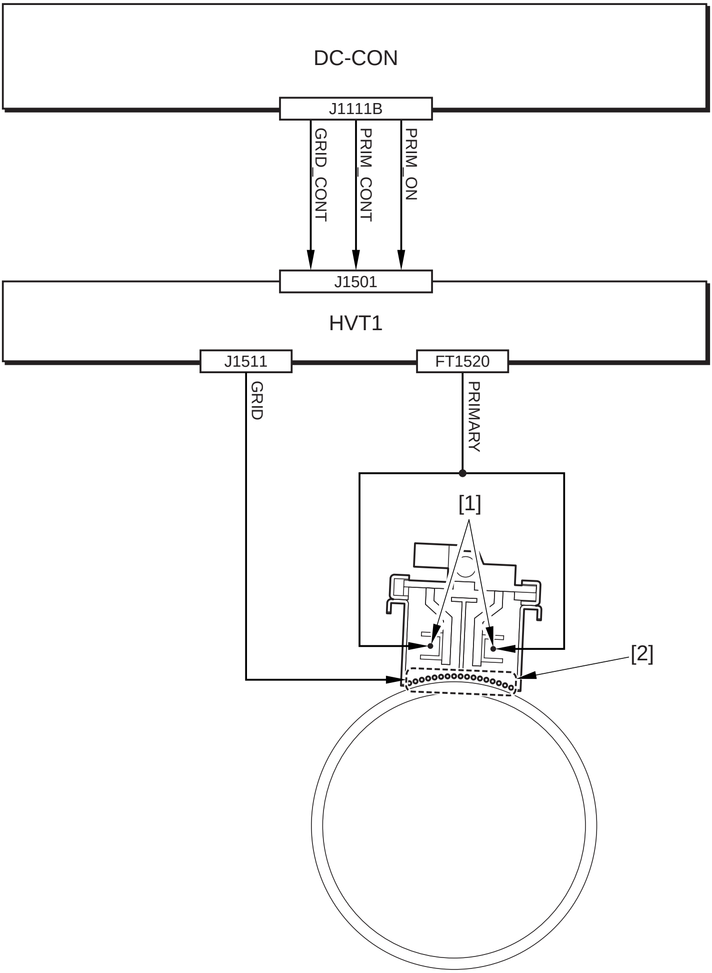
7.5 Charging Mechanism

7.5.1 Controlling the Primary Charging Bias

The primary charging bias is used to charge the surface of the photosensitive drum to a positive potential by way of preparing it for image formation.

The primary charging bias may be either of 2 types of biases: primary charging DC bias, grid DC bias. The bias is generated by the high-voltage PCB 1 in response to a command from the DC controller, and is applied to the primary charging wire or the grid wire.

The level of the grid bias is determined based on the result of potential control.


DC-CON
J1111B
GRID_CONT
PRIM_CONT
PRIM_ON
J1501
HVT1
J1511
FT1520
GRID
PRIMARY
[1]
[2]

F-7-27

1 Grid charging wire
2 Grid wire

HVT1: high-voltage PCB 1
DC-CON: DC controller

7.5.2 Controlling the Primary Charging Assembly Cleaning Mechanism

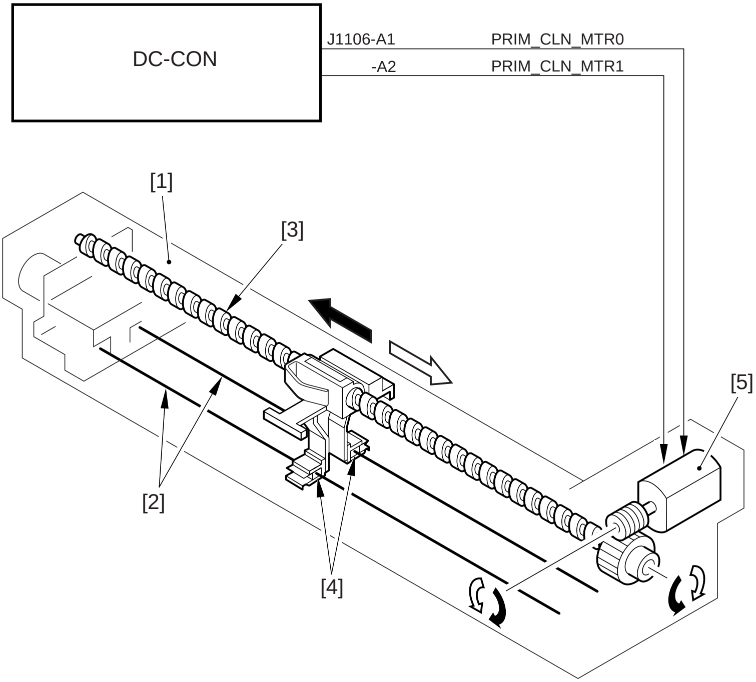
The machine is equipped with a mechanism to clean the charging wire with the aim of preventing soiling of the wire inside the primary charging assembly.

The primary charging wire cleaner motor (M26) is rotated in normal and reverse directions to turn the cleaner screw, causing the wire cleaner to move to the front or the rear for cleaning of the charging wire.

The DC controller serves to drive the primary charging wire cleaner motor by generating 2 types of primary charging wire cleaner motor drive signals (PRIM_CLN_MTR0, PRIM_CLN_MTR1).

The relationship between the drive signals from the DC controller and the cleaning operation is as follows:

- when PRIM_CLN_MTR0 is '0', the wire cleaner moves to the rear.
- when PRIM_CLN_MTR0 is '1', the wire cleaner moves to the front.



F-7-28

1 Primary charging assembly
2 Charging wire
3 Cleaner screw
4 Wire cleaner
5 Primary charging wire cleaner motor

DC-CON: DC controller

The cleaning operation starts in response to the following:

1. the temperature of the fixing roller is 10 deg C or less at time of power-on.
2. wire cleaning is executed in user mode.
3. as many as 2000 images have been processed (i.e., 2000 pages of mono color; 500 pages of full color)*1.

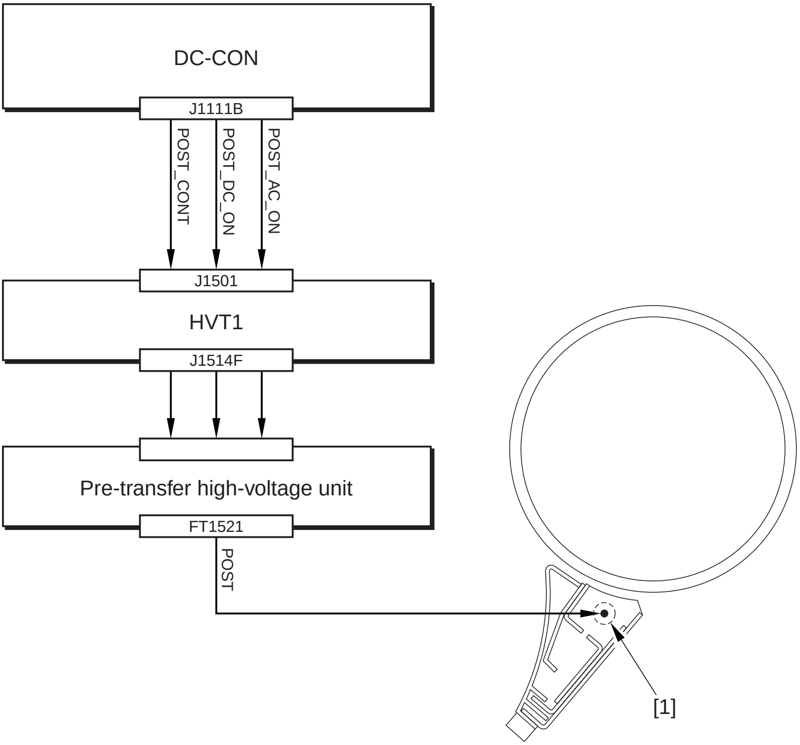
*1: the intervals at which cleaning takes place may be changed using the following service mode item:

- in a normal environment, COPIER>OPTION>BODY>W-CLN-P.
- in a high temperature/high humidity environment, COPIER>OPTION>BODY>W-CLN-PH.

7.5.3 Controlling the Pre-Transfer Charging Bias

The pre-transfer charging bias is used to even out the potential of the toner layers formed on the ITB, and it is applied to the toner on the photosensitive drum when black toner is developed.

The pre-transfer charging bias may be either of 2 types of biases: pre-transfer charging DC bias, pre-transfer charging AC bias. The bias is generated by the high-voltage PCB 1 in response to a command from the DC controller, and is applied to the pre-transfer charging wire.


DC-CON
J1111B
POST_CONT
POST_DC_ON
POST_AC_ON
J1501
HVT1
J1514F
Pre-transfer high-voltage unit
FT1521
POST
[1]

F-7-29

1 Pre-transfer charging wire

HVT1: high-voltage PCB 1
DC-CON: DC controller

7.5.4 Controlling the Pre-Transfer Charging Assembly Cleaning Mechanism

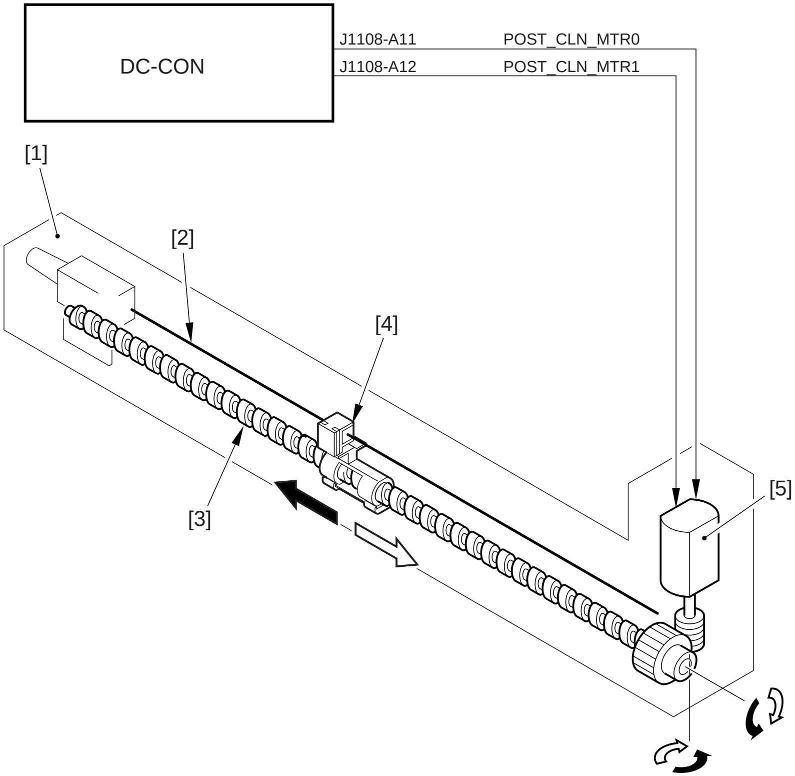
The machine is equipped with a mechanism to clean the charging wire found inside the pre-transfer charging assembly, thus preventing soiling of the wire.

The pre-transfer charging wire cleaner motor (M27) rotates in normal and reverse directions to turn the cleaner screw; as a result, the wire cleaner moves to the front or the rear to clean the charging wire.

The DC controller controls the pre-transfer charging wire cleaner motor drive signal (POST_CLN_+MTR0, POST_CLN_MTR1) to drive the pre-transfer charging wire cleaner motor.

The relationship between the drive signal generated by the DC controller and the cleaning operation is as follows:

- when POST_CLN_MTR0 is '0', the wire cleaner moves to the rear.
- when POST_CLN_MTR0 is '1', the wire cleaner moves to the front.


DC-CON
J1108-A11
POST_CLN_MTR0
J1108-A12
POST_CLN_MTR1
[1]
[2]
[3]
[4]
[5]

F-7-30

1 Pre-transfer charging assembly
2 Charging wire

3 Cleaner screw
4 Wire cleaner
5 Pre-transfer charging wire cleaner motor
6 rear
7 front

DC-CON: DC controller

The cleaning operation takes place in response to the following:
1. the temperature of the fixing roller is 100 deg C or less at power-on.
2. wire cleaning is executed in user mode.
3. as many as 2000 images have been made (copy count; if mono color, 2000 pages, if full color, 500 pages).*1

*1: the intervals at which cleaning takes place may be changed using the following service mode items:
- in a normal environment, COPIER>OPTION>BODY>W-CLN-P.
- in a high temperature/high humidity environment, COPIER>OPTION>BODY>W-CLN-PH.

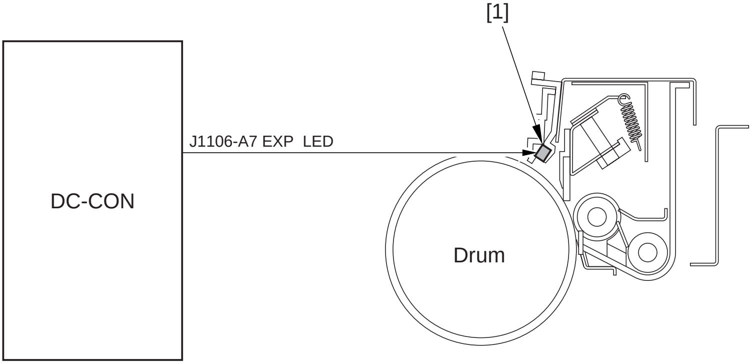
7.5.5 Pre-Exposure LED

The machine uses a pre-exposure LED array to remove charges remaining on the photosensitive drum, thus preventing uneven density in prints.The pre-exposure LED array is arranged opposite the photosensitive drum, and the LEDs are turned on during printing to remove residual changes from the drum surface and forming stable images.

The DC controller controls the pre-exposure LED array drive signal (EXP_LED) to turn on and off the LED array.

The DC controller generates the following drive signal:

EXP_LED: if '0', the pre-exposure LED array goes on. if '1', the pre-exposure LED array goes off.


[1]
DC-CON
J1106-A7 EXP LED
Drum

F-7-31

1 Pre-exposure LED array

7.6 Developing Rotary

7.6.1 Overview of the Developing Rotary

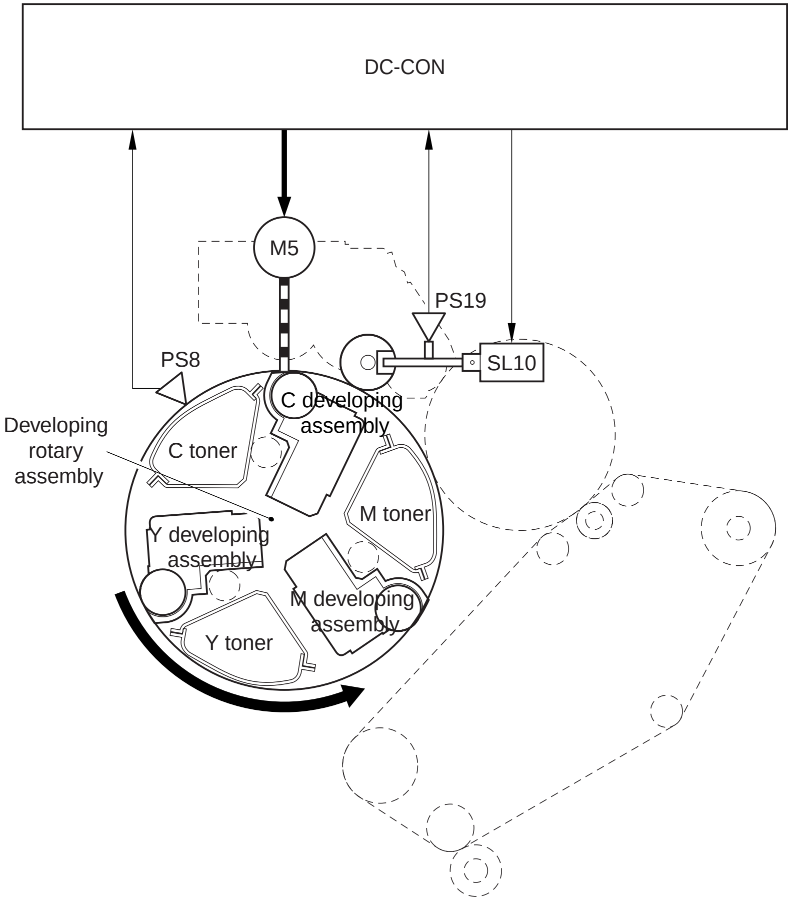
The developing rotary serves to position a color developing assembly to a specific point. Housed inside the rotary are 3 types of color developing assemblies (M, Y, C) and color toner cartridges (M, Y, C).

When printing occurs, the developing rotary motor (M5) rotates to turn the rotary counterclockwise so that one of the 3 color developing assemblies will come face to face with the photosensitive drum in sequence.

The rotary is locked in or out of place by the work of the developing rotary locking solenoid (SL10).

The rotary is equipped with 2 sensors (PS19, PS8), serving to detect the position of the rotary assembly and to turn on and off SL10.

The machine uses the DC controller to control these electrical loads: M5, SL10, PS19, PS8.


DC-CON
M5
PS19
PS8
SL10
Developing rotary assembly
C developing assembly
C toner
M toner
Y developing assembly
M developing assembly
Y toner

F-7-32

DC-CON: DC controller
M5: developing rotary motor
PS8: developing rotary solenoid sensor
PS19: developing rotary home position sensor
SL10: developing rotary fixing solenoid

7.6.2 Controlling the Developing Rotary

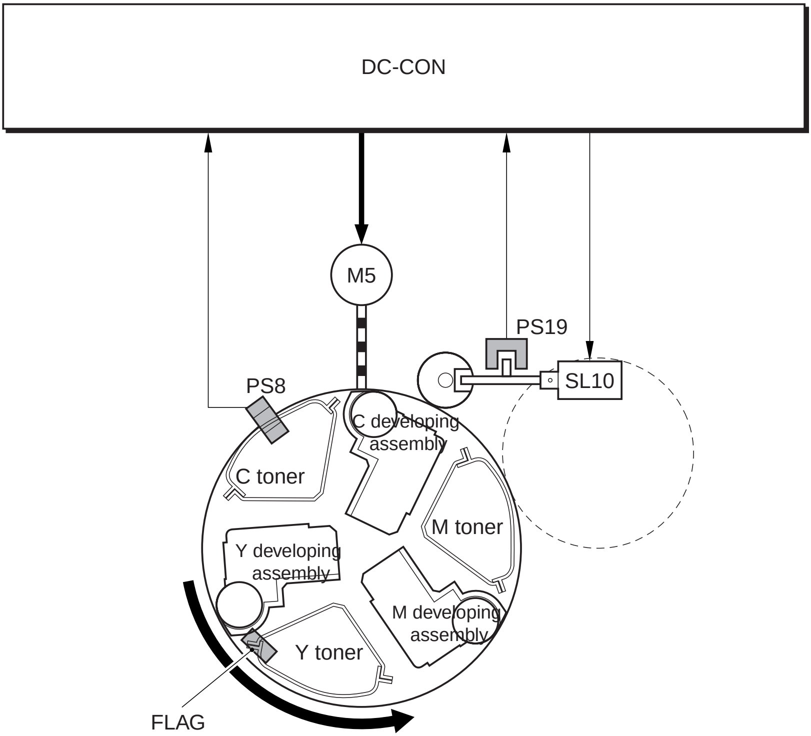
The machine positions the color developing assemblies (M, Y, C) and the color toner cartridges (M, Y, C) housed inside the developing rotary at a specific point at specific times.The DC controller uses the developing rotary home position sensor (PS19) to monitor the position of the rotary, turning on and off the developing rotary motor (M5) to move the rotary.

To rotate the rotary, the DC controller turns on the DC controller developing rotary locking solenoid so that the rotary is freed. On the other hand, to stop the rotary, the DC controller turns off the solenoid so that the rotary is locked in place. The DC controller monitors the state of PS19 to check on the position of the rotary. On the back of the rotary is the home position detecting flag, used to cause the DC controller to assume that the rotary is in home position when the flag moves past PS19.

The DC controller rotates the rotary with reference to the rotary home position, making sure that the rotary stops only at specific points.

There are as many as 6 points at which the rotary stops:

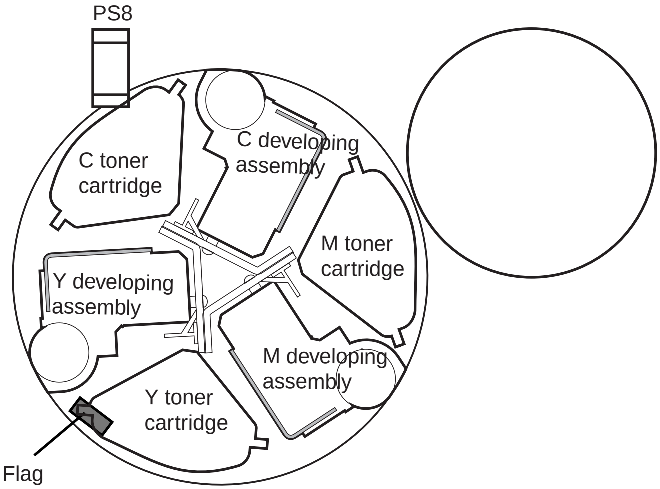
1. point of Y toner cartridge access (home position *1): 1 point
2. point of M, C toner cartridge access: 2 points
3. point of color toner development: 3 points


DC-CON
M5
PS19
SL10
PS8
C developing assembly
C toner
M toner
Y developing assembly
M developing assembly
Y toner
FLAG

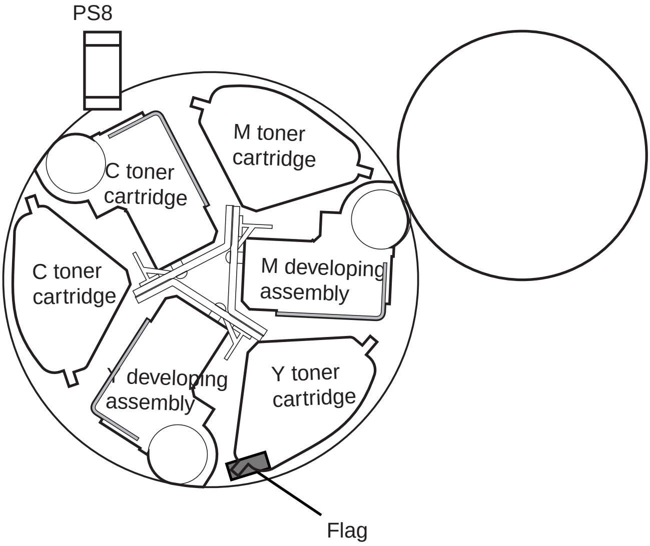
F-7-33

DC-CON: DC controller
M5: developing rotary motor
PS8: developing rotary solenoid sensor
PS19: developing rotary home position sensor
1: home position is also used for black development.

If a color developing cylinder was allowed to remain in contact with the sensitive drum at time of black development, the cylinder would disturb the black toner image. To prevent such disturbance, the machine moves the developing rotary to its home position so that a color developing cylinder will never be opposite the photosensitive drum.
The following shows the position of Y toner cartridge access and point of M development.


PS8
C toner cartridge
C developing assembly
M toner cartridge
Y developing assembly
M developing assembly
Y toner cartridge
Flag

<Point of Y Toner Cartridge Access>

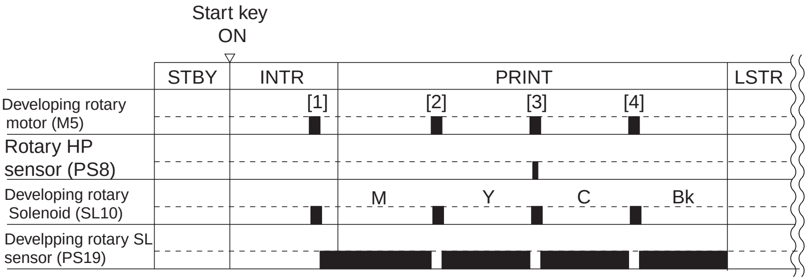

PS8
M toner cartridge
C toner cartridge
C toner cartridge
M developing assembly
Y developing assembly
Y toner cartridge
Flag

<Point of M Development>

F-7-34

The following shows the sequence of operation of the developing rotary when printing takes place:

- Timing of Operation (developing rotary; full color)


Start key
ON
STBY
INTR
PRINT
LSTR
Developing rotary motor (M5)
[1]
[2]
[3]
[4]
Rotary HP sensor (PS8)
Developing rotary Solenoid (SL10)
M
Y
C
Bk
Develpping rotary SL sensor (PS19)

F-7-35

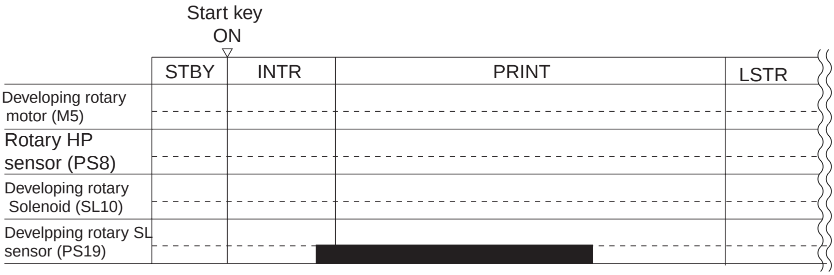
1 moves from the rotary home position to the point of M development.

2 moves from the point of M development to the point of Y development.

3 moves from the point of Y development to the point of C development.

4 moves from the point of C development to the rotary home position.

- Timing of Operation (developing rotary; mono color)


Start key
ON
STBY
INTR
PRINT
LSTR
Developing rotary motor (M5)
Rotary HP sensor (PS8)
Developing rotary Solenoid (SL10)
Develpping rotary SL sensor (PS19)

F-7-36

⚠

E021-0001 (developing rotary rotation error)

indicates that any of the following 2 conditions exits:

1. the home position flag cannot be detected.
2. an error occurred in the intervals at which the home position flag is detected while the developing rotary is rotating.

7.7 Developing Unit

7.7.1 Construction of the Color Developing Assembly

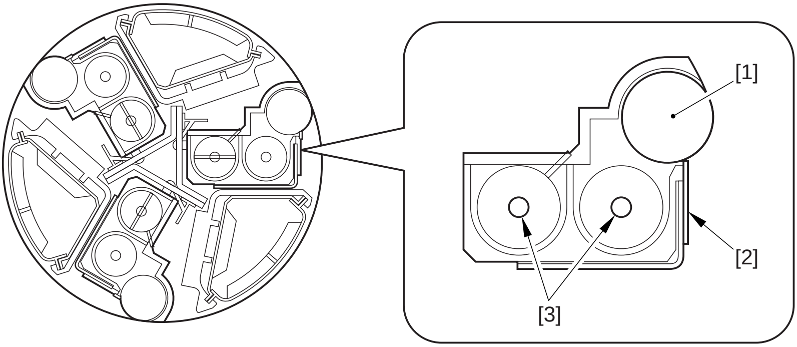
The machine uses 3 types of color developing assemblies (M, Y, C), all housed inside the developing rotary.

These color developing assemblies are of the same construction, the only difference being the color of toner (dye) supplied by individual toner cartridges.

The following shows the construction and the functions of the color developing assemblies:

T-7-16

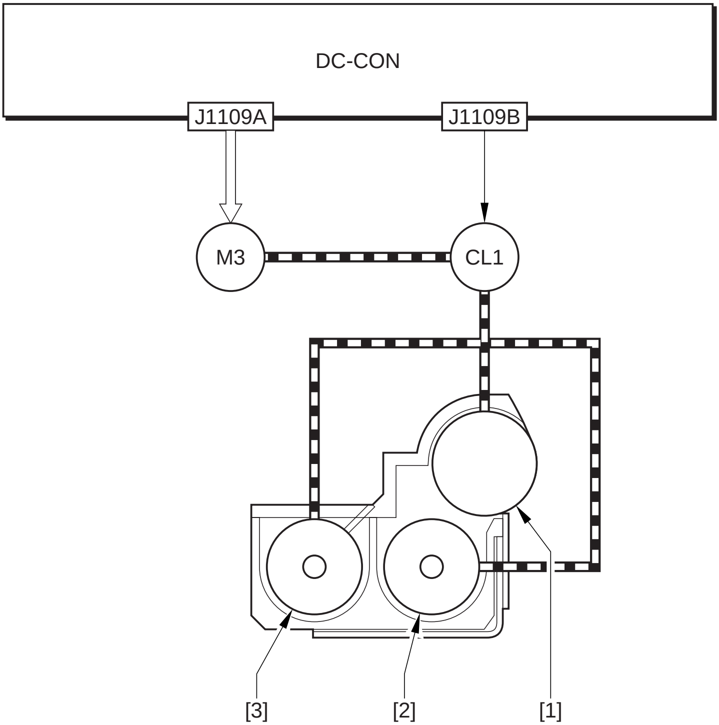
Item	Description
1 Developing cylinder	holds toner (toner/carrier).
2 Blade	forms an even layer of toner on the developing cylinder.
3 Developer stirring screw	stirs the toner and supplies it to the developing cylinder.



F-7-37

7.7.2 Controlling the Color Developing Assembly Drive Mechanism

The color developing assembly mainly consists of the developing cylinder, toner stirring screw A, and toner stirring screw B. These loads are driven when the color developing clutch (CL1) goes on, and are designed so that they go on only when development takes place.



F-7-38

1 Developing cylinder
2 Toner stirring screw A
3 Toner stirring screw B

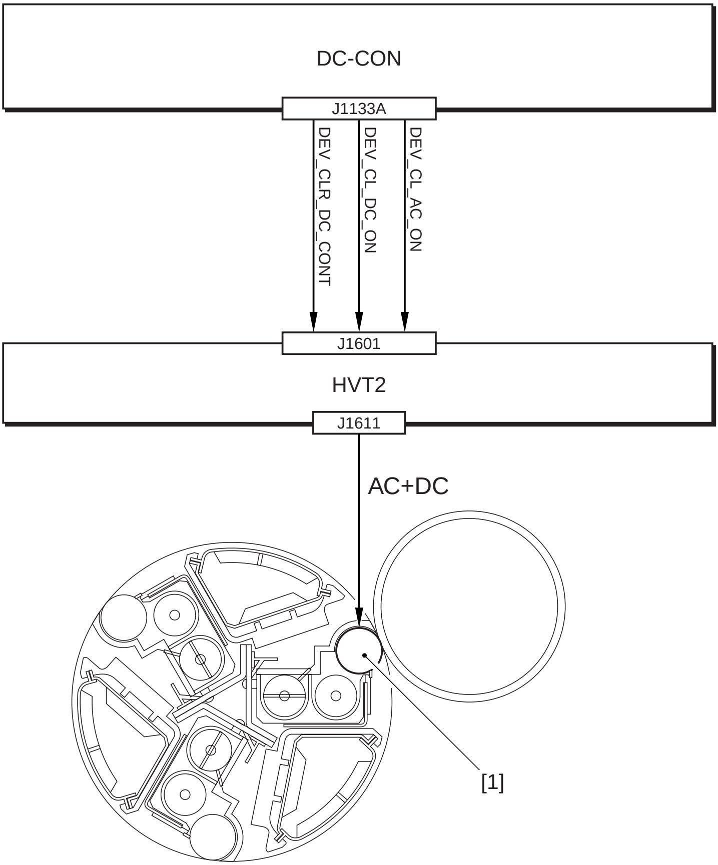
M3: development motor

CL1: color developing clutch
DC-CON: DC controller

7.7.3 Controlling the Color Developing Bias

The color developing bias is generated to enable depositing of color toner over the latent static image on the surface of the photosensitive drum.

The color developing bias may be either of 2 types of biases: color developing DC bias, color developing AC bias. These biases are generated by the high-voltage PCB 2 in response to a command from the DC controller, and are applied to the color developing cylinder at specific timing. The level of the bias is determined based on the result of potential control.

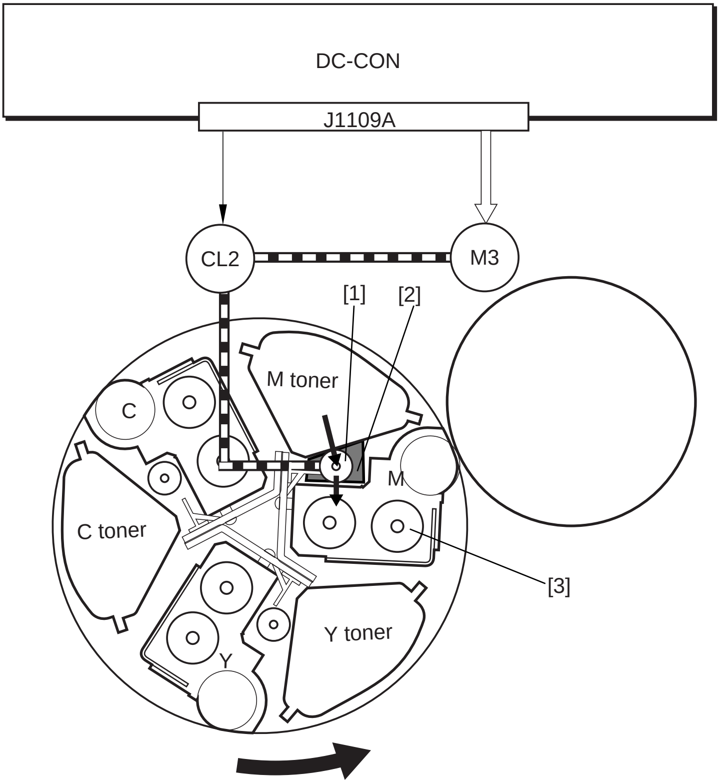

DC-CON
J1133A
DEV_CLR_DC_CONT
DEV_CL_DC_ON
DEV_CL_AC_ON
J1601
HVT2
J1611
AC+DC
[1]

F-7-39

1 Color developing cylinder
DC-CON: DC controller
HVT2: high-voltage PCB 2

7.7.4 Color Toner Supply

The color toner is sent to the color toner developing assembly from the color toner cartridge by way of the buffer assembly. The supply path consists of 2 segments: the path in the buffer assembly and the path to the color developing assembly. In the former, toner inside the color toner cartridge is moved to the buffer assembly of the developing rotary. The work is done by rotating the developing rotary so that toner inside the color toner cartridge falls on its own into the buffer assembly. The latter, on the other hand, is done when the toner feedscrew found inside the buffer assembly rotates; the feedscrew is controlled by the DC controller, which turns on the development motor (M3) and the color toner supply clutch (CL2) according to the amounts of toner needed as indicated by the result of ATR control. The toner feedscrew inside the buffer assembly is driven to rotate for a specific period of time to supply the color developing assembly with the exact amount of toner from the toner buffer assembly.



F-7-40

1 Color toner feedscrew

2 Buffer assembly

3 Color developing assembly

M3: development motor
CL2: color toner supply clutch

7.7.5 Detecting the Level of Color Toner

The machine is equipped with 2 types of detection mechanism to monitor the level of color toner:

1. based on the reading of the video counter
2. based on the state of the scanner sensor

Detection by the Reading of the Video Counter

The machine computes the amount of toner consumption for individual colors based on the video data coming from the main controller, and uses the result to find out the level of toner remaining inside the color developing assembly. The machine runs a check for every color print, and keeps the result of detection in the memory of the DC controller.
The range of toner level is between 1% and 100% (in 1% increments).

Memo:

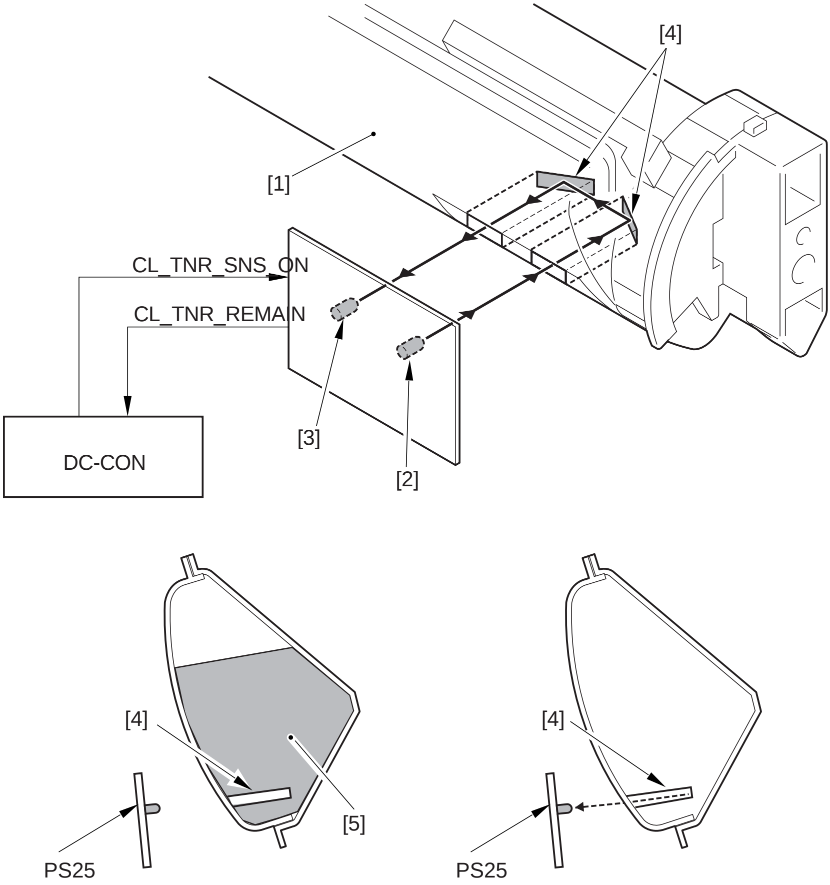
When the color toner starts to run out, the machine indicates the user message "Toner Running Short," with the level of toner falling to 10%. (at time of shipment)
The timing of indicating the message may be changed in service mode (between toner levels of 5% and 10%): COPIER>OPTION>BODY>T-LW-LVL.

Detention by the Optical Sensor

The machine uses a penetration type sensor (color toner level sensor; PS25) to check the presence/absence of color toner; specifically, the DC controller monitors the state of PS25, which consists of a light-emitting segment (LED) and a light-receiving segment (PD).
When printing starts, the DC controller generates the LED drive signal (CL_TNR_SNS_ON) to turn on the LED. The light from the light-emitting segment moves through the light guide mounted to the cartridge to reach the inside of the toner cartridge. The light then moves through the toner cartridge and then along the light guide to reach the light-receiving segment, causing the color toner level detection signal (CL_TNR_REMAIN) to be sent to the DC controller.
The DC controller, in turn, detects the presence/absence of toner using the toner level detection signal occurring as the result of turning on the light-emitting segment of the

sensor.

The following shows the timing of detection:


[4]
[1]
CL_TNR_SNS_ON
CL_TNR_REMAIN
DC-CON
[3]
[2]
[4]
[5]
PS25
[4]
PS25

<Much Toner Left>

<Little Toner Left>

F-7-41

1 Toner cartridge

2 Light-emitting segment

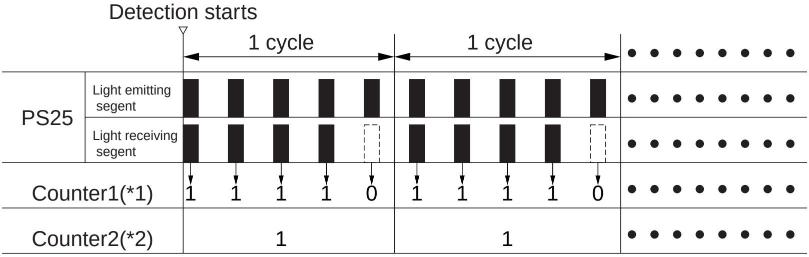
3 Light-receiving segment

4 Light guide

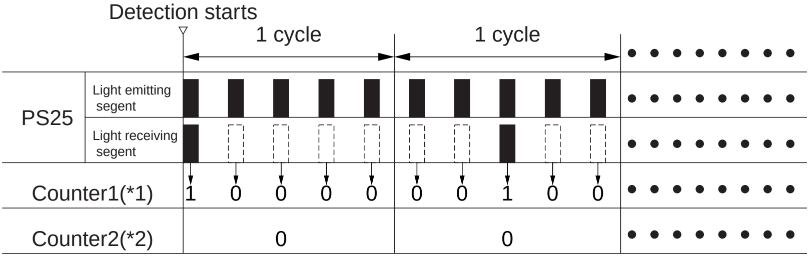
5 Toner

PS25: color toner level sensor
DC-CON: DC controller

<Little Toner Left>


Detection starts
1 cycle
1 cycle
PS25
Light emitting segent
Light receiving segent
Counter1(*1)
1 1 1 1 0 1 1 1 1 0
Counter2(*2)
1
1

<Much Toner Left>


Detection starts
1 cycle
1 cycle
PS25
Light emitting segent
Light receiving segent
Counter1(*1)
1 0 0 0 0 0 0 1 0 0
Counter2(*2)
0
0

F-7-42

*1: if the light-receiving segment of PS25 receives light, '1'.

*2: if the state of counter 1 is '1' as many as 4 times during a single cycle (5 lighting operations), '1'.

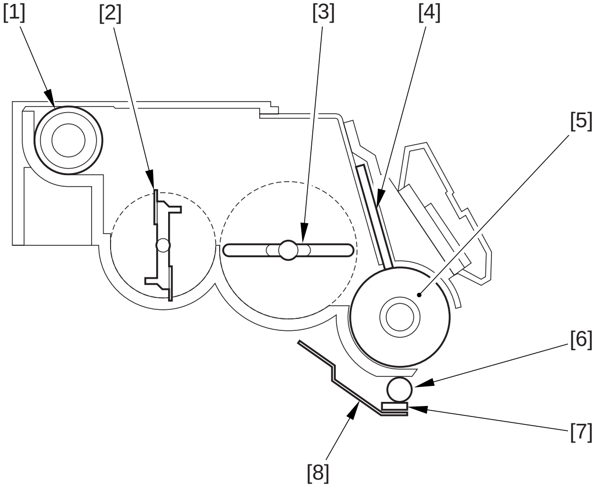
Memo:

If color toner is absent, the user message "Add Toner" is indicated and the printing is stopped.

7.7.6 Construction of the Black Developing Assembly 0003-1147

iR C6800 / iR C6800N

The black developing assembly is found outside the developing rotary, and is held opposite the photosensitive drum at all times. The toner supplied to the black developing assembly is fed from the hopper assembly. The following shows the construction and the functions of the black developing assembly:



F-7-43

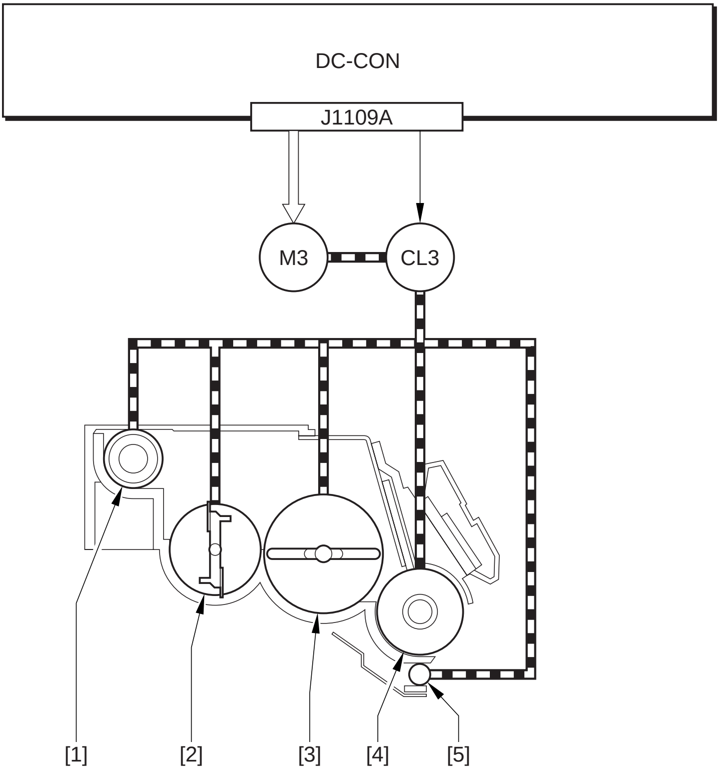
T-7-17

Item	Description
1 Toner feedscrew	moves toner supplied by the hopper assembly to the inside of the developing unit.
2 Toner stirring plate 1	supplies toner to the developing cylinder.
3 Toner stirring plate 2	supplies toner to the developing cylinder.
4 Blade	forms an even layer of toner on the developing cylinder.
5 Developing cylinder	retains toner
6 Toner colleting roller	attracts stray toner.
7 Scraper	scrapes off stray toner from the toner collecting roller.
8 Stray toner case.	collects stray toner in the toner case.

Item	Description

7.7.7 Controlling the Black Developing Assembly Drive Mechanism

The black developing assembly consists of 5 components in terms of drive loads, which are driven when the development motor (M3) and the black developing clutch (CL3) go on.



F-7-44

1 Toner feedscrew

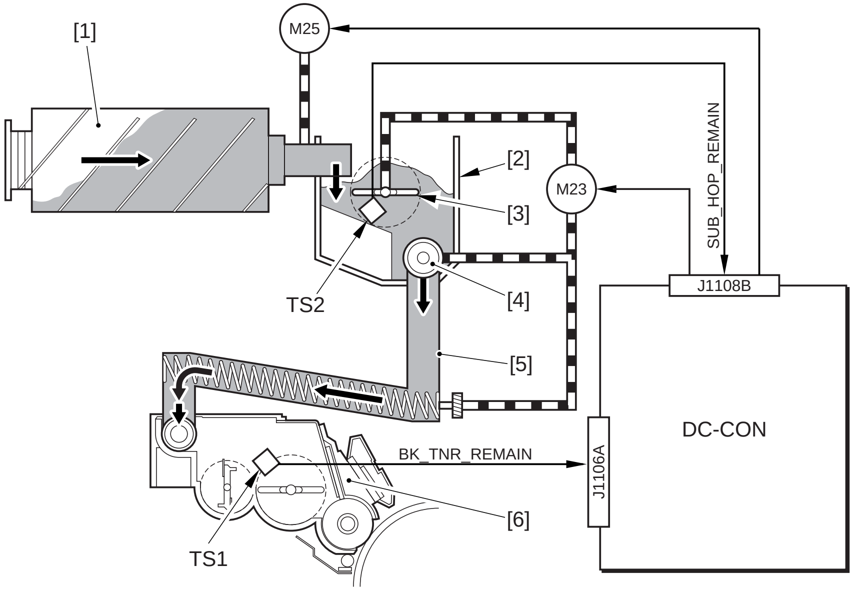
2 Toner stirring plate 1

3 Toner stirring plate 2
4 Developing cylinder
5 Toner colleting roller

M3: development motor
CL3: black developing clutch
DC-CON: DC controller

7.7.8 Black Toner Supply

Black toner is supplied to the black toner developing assembly from the black toner cartridge by way of the hopper assembly, which plays the major role in the supply path.
As many as 2 motors are associated with the hopper assembly: black toner supply motor (M25) and hopper stirring motor (M23), serving to adjust the amount of toner sent to the black developing assembly.
The DC controller monitors the output of the black toner level sensor (TS1) and the toner level sensor (TS2) found inside the hopper, determining the amount of toner to supply to the hopper assembly or to the black toner developing assembly. When the toner starts to run out, the DC controller drives M25 or M23 to make up for the shortage; if the level of toner is high, it keeps M23 and M25 still.


[1]
M25
M23
SUB_HOP_REMAIN
[2]
[3]
[4]
[5]
[6]
TS2
TS1
J1108B
J1106A
DC-CON
BK_TNR_REMAIN

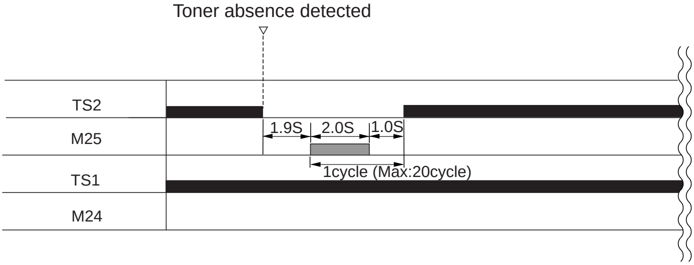
F-7-45

1 Black toner bottle
2 Hopper assembly
3 Toner stirring plate
4 Toner feedscrew
5 Toner feed pipe
6 Black developing assembly

M23: hopper stirring motor
M25: black toner supply motor
TS1: black toner level sensor
TS22: hopper inside toner level sensor
DC-CON: DC controller

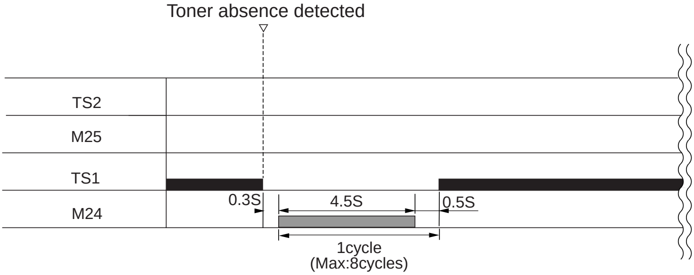
The machine uses the following sequence of operation to make up for any shortage of toner.

- **IfToner Inside the Hopper Assembly**


Toner absence detected
TS2
M25
TS1
M24
1.9S
2.0S
1.0S
1cycle (Max:20cycle)

F-7-46

- If Toner Runs Out in the Black Developing Assembly


Toner absence detected
TS2
M25
TS1
M24
0.3S
4.5S
0.5S
1cycle
(Max:8cycles)

F-7-47

⚠

E020-00FF (hopper stirring motor error)

indicates that ITS1=0 continues when the hopper stirring motor has been driven for 8 cycles (ON for 4.5 sec, OFF for 0.5 sec x 8 times) after the presence of toner inside the hopper (TS2=1) and the absence of toner (TS1=0) inside the black toner assembly have been detected.

Memo:

The following user messages are used in relation to black toner supply:

[Toner Running Short]

condition: TS1=0 exists 1 min after the black toner supply motor (M25) is started (no toner inside the hopper assembly).

state of printer: ready to print

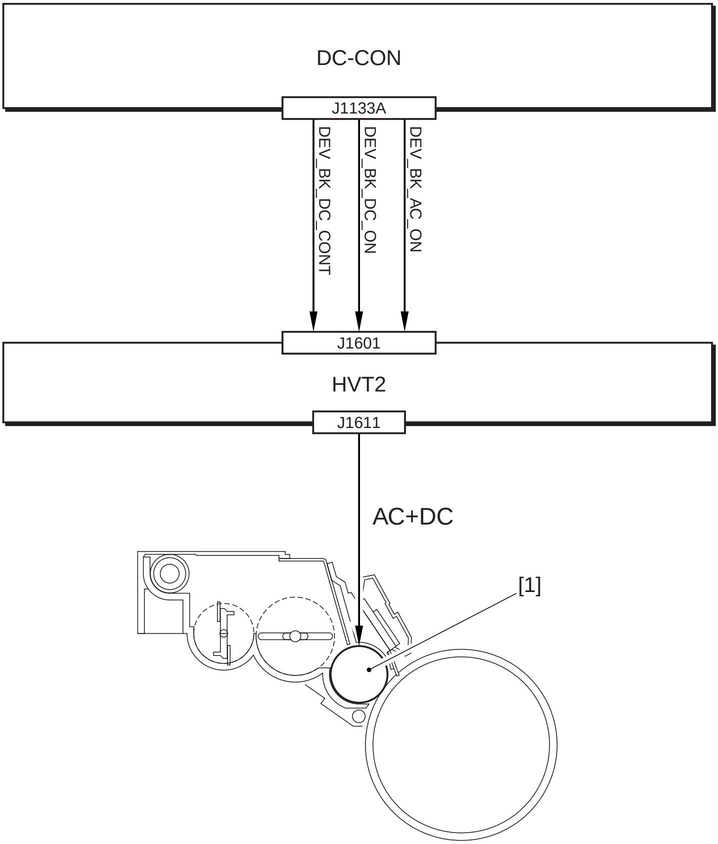
[Add Toner]

condition: TS1 and TS2=0 exists 20 sec after the hopper stirring motor (M23) is driven. (no toner inside the black developing assembly).

state of printer: at rest

7.7.9 Controlling the Black Developing Bias

The black developing bias is used to enable depositing of black toner over the latent static image on the surface of the photosensitive drum, and there are 2 types of black developing biases: black developing DC bias and black developing AC bias. These biases are generated by the high-voltage PCB 2 in response to a command from the DC controller for application to the black developing cylinder.


DC-CON
J1133A
DEV_BK_DC_CONT
DEV_BK_DC_ON
DEV_BK_AC_ON
J1601
HVT2
J1611
AC+DC
[1]

F-7-48

1 Black developing cylinder

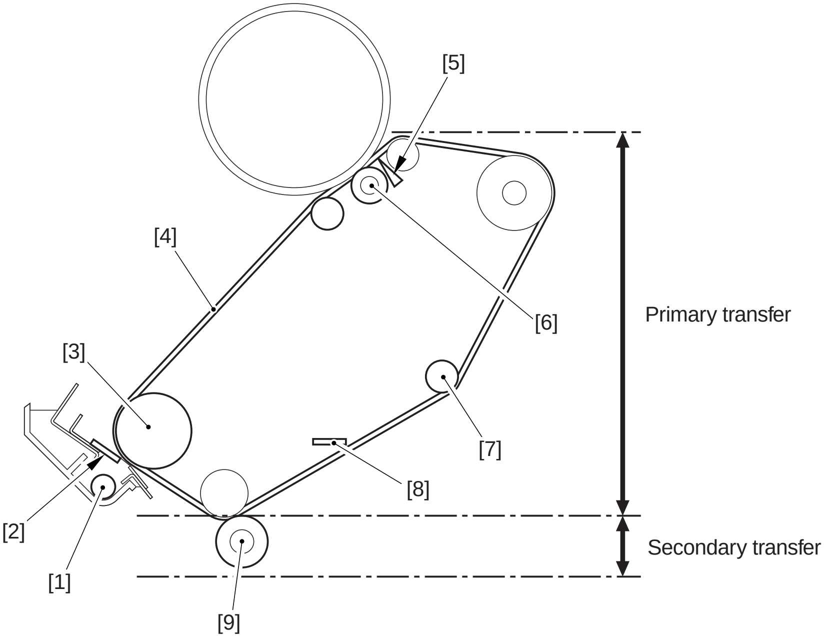
DC-CON: DC controller
HVT2: high-voltage PCB 2

7.8 Transfer Device

7.8.1 Overview of the Transfer Assembly

The transfer assembly is divided into the primary transfer assembly and the secondary transfer assembly. The primary transfer assembly serves to transfer the toner image of the photosensitive drum to the ITB, while the secondary transfer assembly moves the image transferred to it onto paper.

The major components of the transfer assembly include the following: ITB cleaning screw, ITB cleaning blade, ITB drive roller, ITB, primary transfer static eliminator, primary transfer roller, tension roller, ITB inside cleaner end scraper, secondary transfer outside roller.



F-7-49

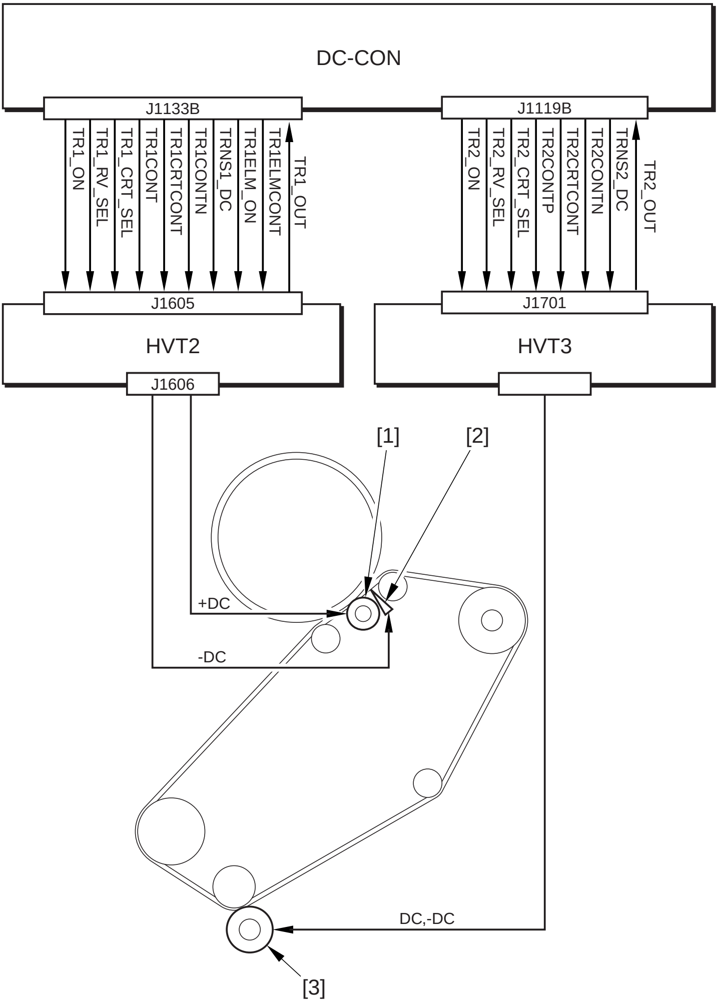
1 ITB cleaning screw

2 ITB cleaning blade

3 ITB drive roller
4 ITB
5 Primary transfer static eliminator
6 Primary transfer roller
7 Tension roller
8 ITB inside cleaner end scraper
9 Secondary transfer outside roller

7.8.2 Controlling the Transfer Bias

The transfer bias may be the primary transfer bias used in the primary transfer assembly or the secondary transfer bias used in the secondary transfer assembly.
There are 3 types of primary transfer biases (primary transfer DC bias, primary transfer DC reverse bias, primary transfer static eliminator bias), while there are 2 types of secondary transfer biases (secondary DC bias, secondary transfer DC reverse bias). These biases are generated by the high-voltage PCBs 2 and 3 according to the instructions of the DC controller, and are applied to their respective loads (primary transfer roller, primary transfer static eliminator, secondary transfer outside roller).


DC-CON
J1133B
J1119B
TR1_ON
TR1_RV_SEL
TR1_CRT_SEL
TR1CONT
TR1CRTCONT
TR1CONTN
TRNS1_DC
TR1ELM_ON
TR1ELMCONT
TR1_OUT
TR2_ON
TR2_RV_SEL
TR2_CRT_SEL
TR2CONTP
TR2CRTCONT
TR2CONTN
TRNS2_DC
TR2_OUT
J1605
J1701
HVT2
HVT3
J1606
[1]
[2]
+DC
-DC
DC,-DC
[3]

F-7-50

1 Primary transfer roller

2 Primary transfer static eliminator

3 Secondary transfer outside roller

HVT2: high-voltage PCB 2

HVT3: high-voltage PCB 3

DC-CON: DC controller

What follows below is an additional explanation of the individual biases used in the transfer assemblies:

1. Primary Transfer Bias (application bias: DC)
The primary transfer bias is used to transfer the toner image on the photosensitive drum to the ITB, and is applied to the primary transfer roller.

2. Primary Transfer Reverse Bias (application bias: -DC)
This bias is used to clean (remove) the patch pattern formed on the ITB for image stabilization control (Dmax, Dhalf, ATR).
In the course of image stabilization control, this bias is applied so that the patch pattern (toner) is retuned from the ITB to the photosensitive drum for collection by the photosensitive drum cleaner.

3. Primary Transfer Static Eliminator Bias (application bias: -DC)
The primary transfer static eliminator is arranged to the side of the primary transfer roller, serving to prevent the toner image from flying astray as the result of discharge between the ITB and the primary transfer downstream roller.

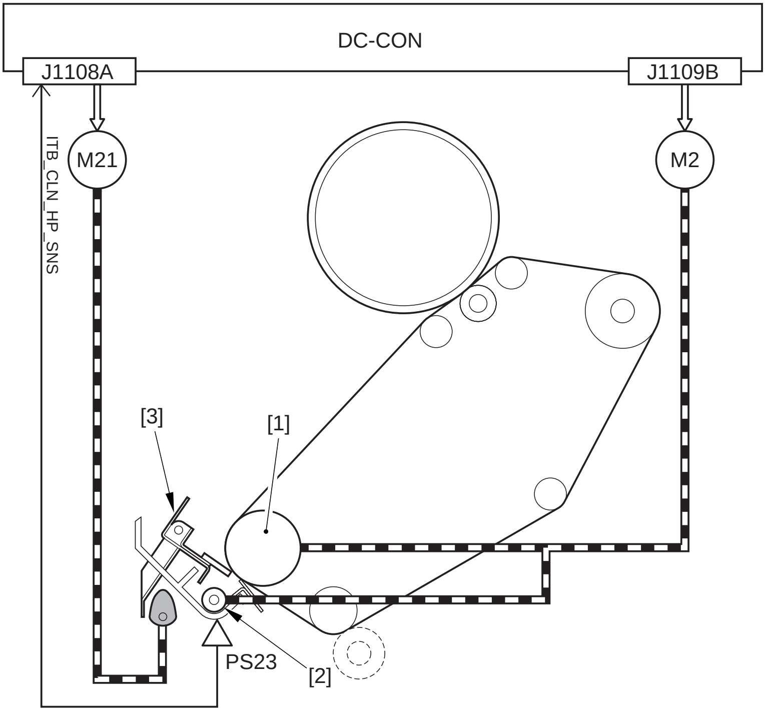
4. Secondary Transfer Bias (application bias: DC, -DC)
The secondary transfer bias is used to transfer the toner image from the ITB to paper. There are 2 types of secondary transfer biases, and they are applied to the secondary transfer outside roller.
At time of printing, a DC bias is applied to the secondary transfer outside roller. The DC reverse bias is used to remove the residual toner from the secondary transfer roller; its application will cause the residual toner on the secondary transfer roller to be attracted to the ITB for collection to the waste toner bottle by the work of the ITB cleaner.

7.8.3 Overview of the Primary Transfer Assembly

The primary transfer assembly is driven by 2 motors, mainly serving to rotate major rollers and relocate the rollers.

The drum/ITB motor (M2) is used to rotate the ITB drive roller and the ITB cleaning screw; the ITB cleaner shift motor (M21), on the other hand, is used to move the ITB cleaner to and from the ITB belt.

The rollers are moved when the DC controller operates the 2 motors; the DC controller, also checks the home position of the ITB cleaner for use when it moves the ITB cleaner to and from the ITB.



F-7-51

1 ITB drive roller
2 ITB cleaning screw
3 ITB cleaner

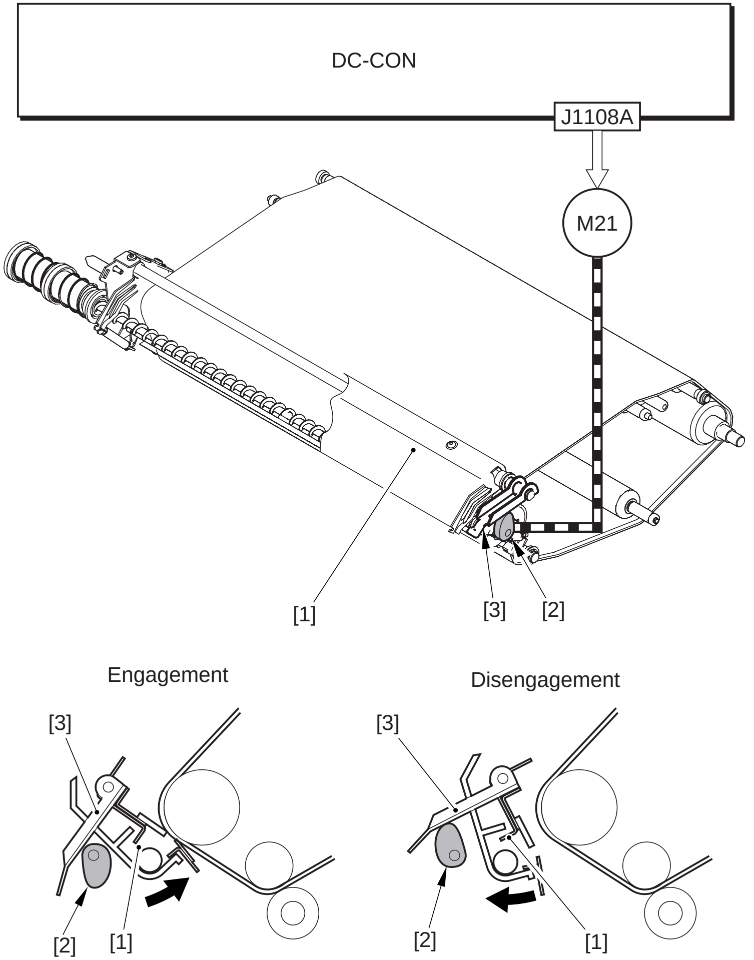
PS23: ITB cleaning home position sensor
M2: drum/ITB motor

M21: ITB cleaner shift motor
DC-CON: DC controller

7.8.4 Controlling the ITB Cleaner Shifting Mechanism

The machine moves the ITB cleaner to and from the ITB for removal of toner remaining on the ITB. To bring the cleaner into contact with the belt, the DC controller drives the ITB cleaner shift motor (M21) at the following timing of operation:

1. immediately after the start of secondary transfer, the DC controller generates the ITB cleaner shift motor drive signal so that M21 rotates clockwise for about 0.8 sec.
2. the shift cam rotates clockwise, raising the shift arm (thereby locking the ITB cleaner in place against the ITB).
3. when cleaning of the ITB is done, the DC controller generates the ITB center shift motor drive signal so that M21 rotates clockwise for about 0.8 sec.
4. the shift cam rotates clockwise so that the shift arm lowers (thereby causing the ITB cleaner to move away from the ITB).


DC-CON
J1108A
M21
[1]
[3]
[2]
Engagement
Disengagement
[3]
[2]
[1]
[3]
[2]
[1]

F-7-52

1 ITB cleaner

2 Shift cam

3 Shift arm

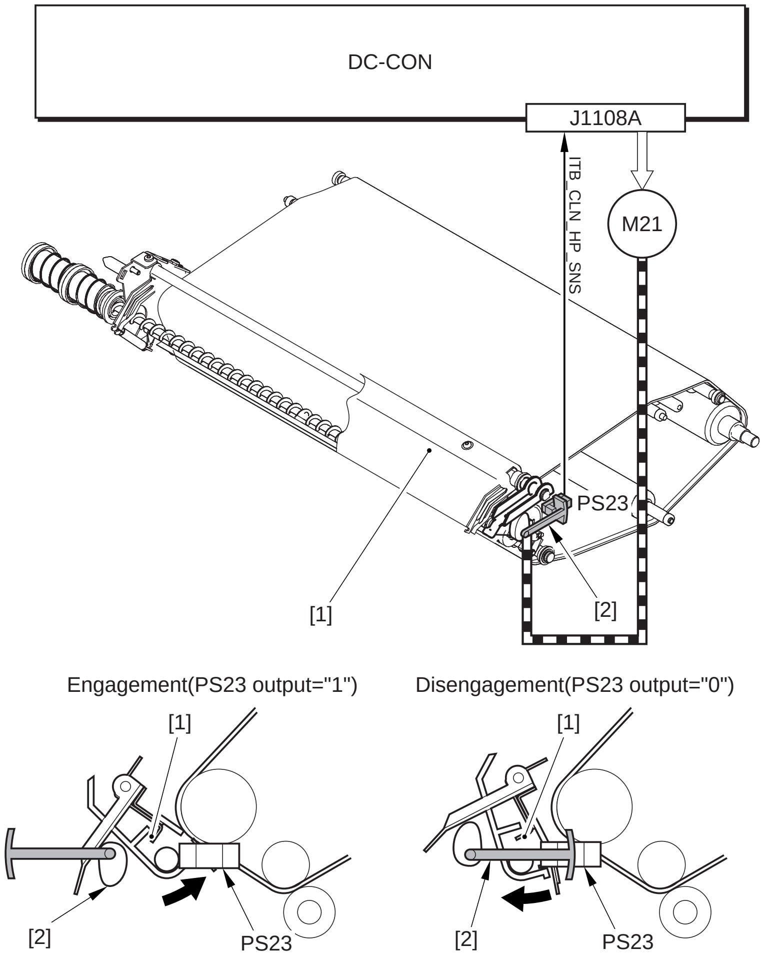
M21: ITB cleaner shift motor

DC-CON: DC controller

7.8.5 Checking the ITB Cleaner Position

The machine runs a home position search to locate the ITB cleaner. The DC controller checks the location with reference to the output of the ITB cleaner home position sensor (PS23).

When the power is turned on or the front cover is opened/closed, the DC controller checks to find out if the home position flag attached to the drive shaft of the ITB cleaner shift motor (M21) blocks M23.


DC-CON
J1108A
ITB_CLN_HP_SNS
M21
PS23
[1]
[2]
Engagement(PS23 output="1")
Disengagement(PS23 output="0")
[1]
[2]
PS23
[1]
[2]
PS23

F-7-53

1 ITB cleaner
2 ITB cleaner home position flag

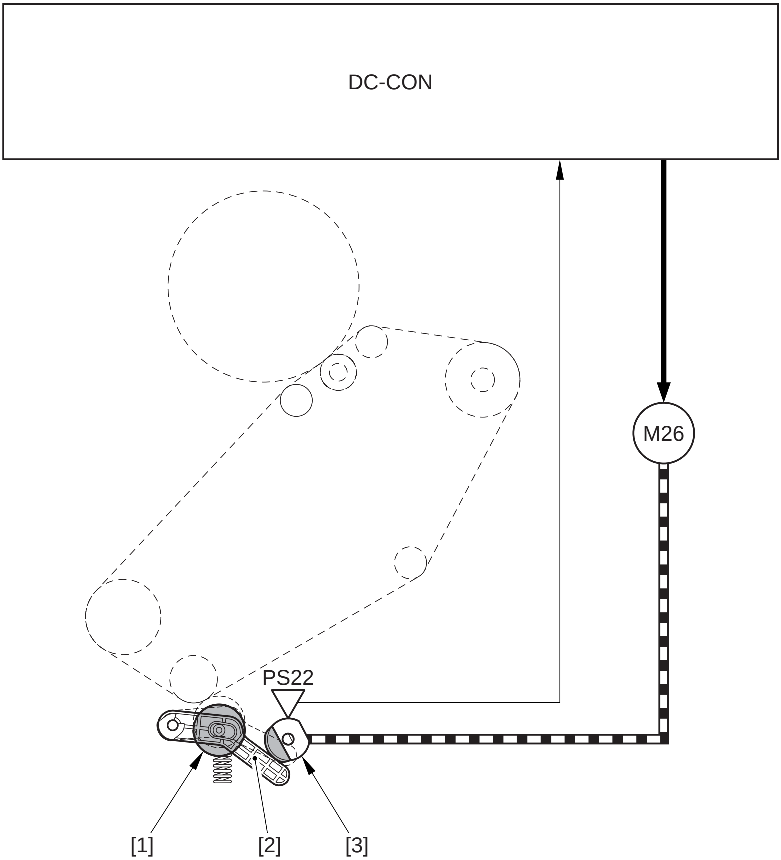
PS23: ITB cleaner home position sensor
M21: ITB cleaner shift motor
DC-CON: DC controller

⚠

E078-0001 (ITB cleaner shift motor error)
indicates that the ITB cleaner remains locked in position (PS23=1) 5 sec after the ITB cleaner shift motor (M21) is started.

7.8.6 Overview of the Secondary Transfer Assembly

The secondary transfer outside roller shift motor (M20) drives the secondary transfer outside roller to move it into contact with or away from the ITB inside the secondary transfer assembly. The DC controller controls the operation of M26 for the movement; it also runs a check on the secondary transfer outside roller for its location (i.e., to see if it is in contact with the belt).



F-7-54

1 Secondary transfer outside roller

2 Shift arm

3 Shift cam

PS22: secondary transfer outside roller home position sensor

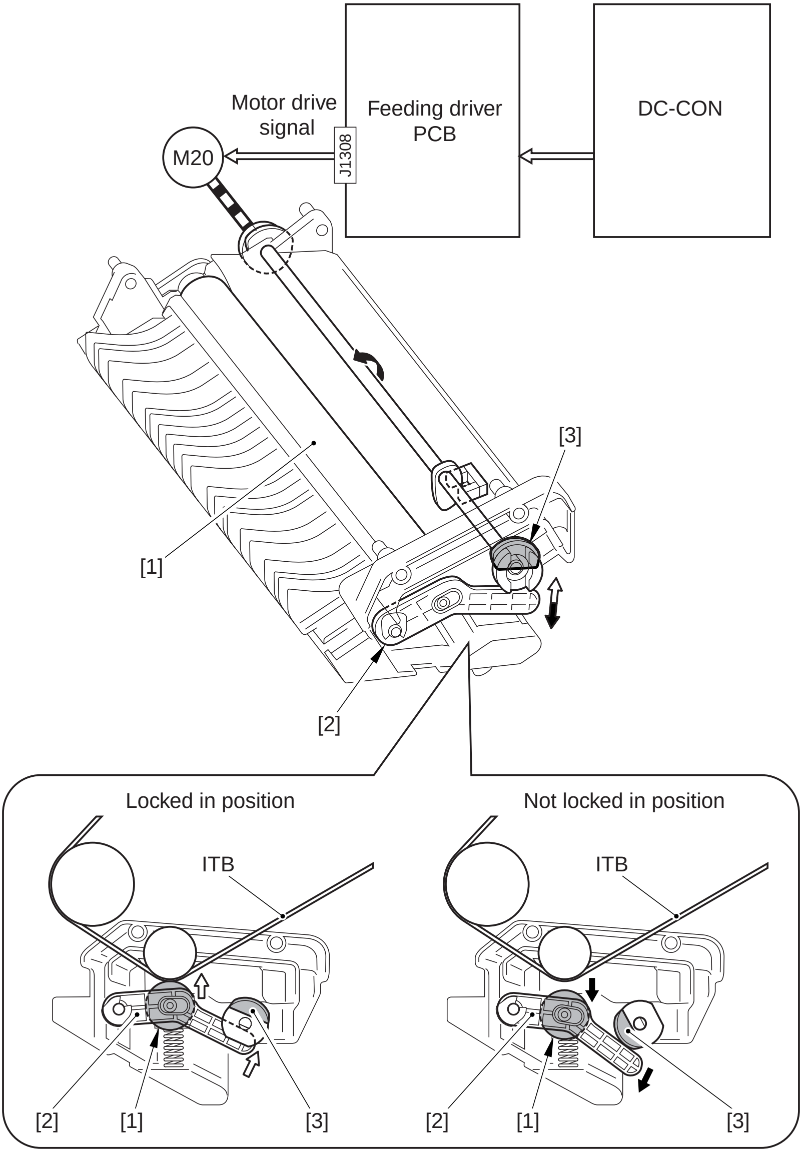
M20: secondary transfer outside roller shift motor

DC-CON: DC controller

7.8.7 Controlling the Movement of the Secondary Transfer Roller

The machine moves the secondary transfer outside roller into contact with or away from the ITB for transfer of toner images from the ITB to paper. The DC controller drives the secondary transfer outside roller shift motor (M20) to move the roller at the following timing of operation:

1. after primary transfer, the DC controller generates the secondary transfer roller shift motor drive signal so that M20 rotates clockwise for about 0.8 sec.
2. the shift cam rotates clockwise to move down the shift arm (thereby locking the secondary transfer outside roller in place against the ITB).
3. after secondary transfer, the DC controller generates the secondary transfer outside roller shift motor drive signal so that M20 rotates clockwise for about 0.8 sec.
4. the shift cam rotes clockwise so that the contact arm is moved up and the secondary transfer outside roller is moved away from the ITB.


Motor drive signal
Feeding driver PCB
DC-CON
M20
J1308
[3]
[1]
[2]
Locked in position
Not locked in position
ITB
ITB
[2]
[1]
[3]
[2]
[1]
[3]

F-7-55

1 Secondary transfer outside roller

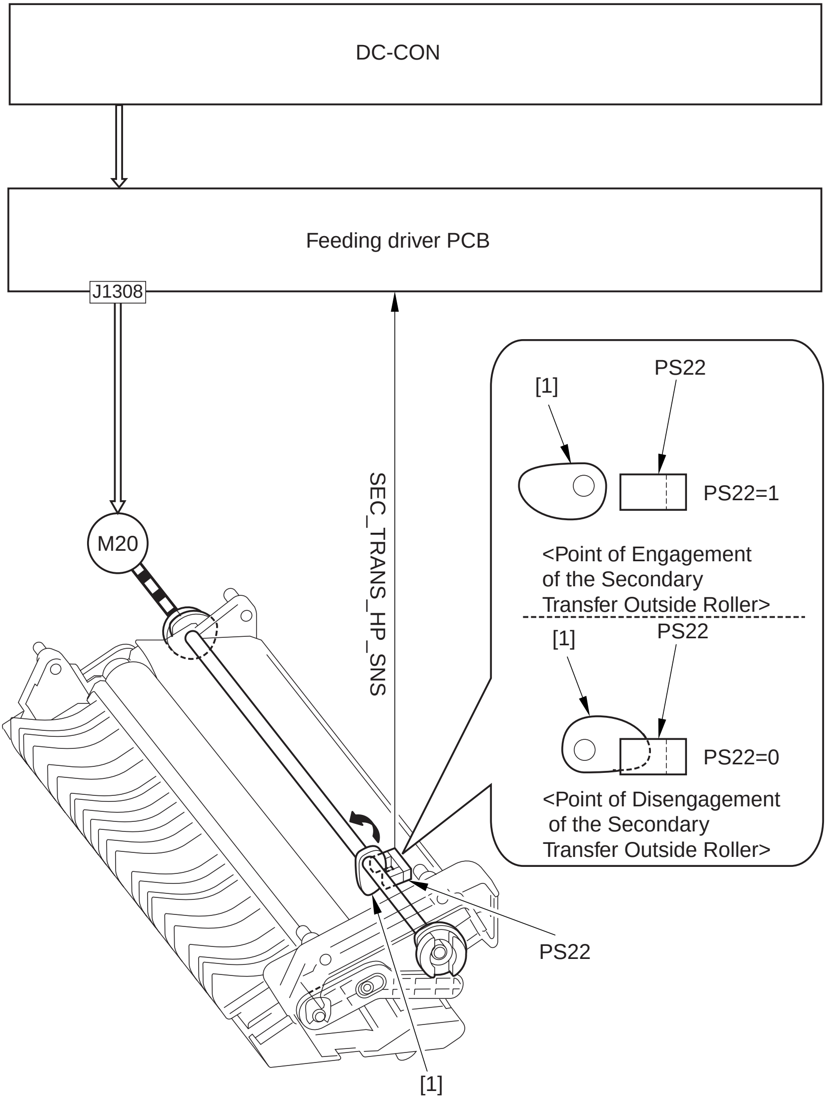
2 Shift arm
3 Shift cam

M20: secondary transfer outside roller shift motor
DC-CON: DC controller

7.8.8 Checking the Location of the Secondary Transfer Roller

The machine runs a home position search to check the location of the secondary transfer outside roller, i.e., the DC controller checks on the output of the secondary transfer outside roller home position sensor (PS22).

When the power is turned on or the front cover is opened/closed, the DC controller checks the location of the secondary transfer outside roller with reference to whether the home position flag attached to the drive shaft of M20 is blocking PS22.


DC-CON
Feeding driver PCB
J1308
M20
SEC_TRANS_HP_SNS
[1]
PS22
PS22=1
<Point of Engagement of the Secondary Transfer Outside Roller>
[1]
PS22
PS22=0
<Point of Disengagement of the Secondary Transfer Outside Roller>
PS22
[1]

F-7-56

1 Secondary transfer outside roller home position flag

PS22: secondary transfer outside roller home position sensor

M20: secondary transfer outside roller shift motor

DC-CON: DC controller

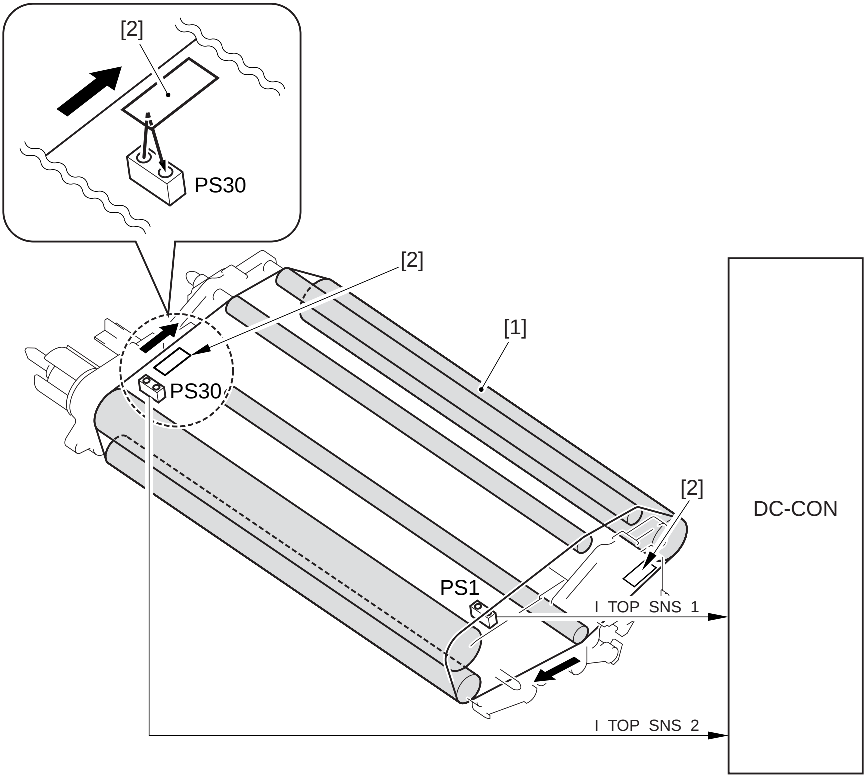
⚠

E077-0001 (secondary transfer outside roller shift motor error)
indicates that the secondary transfer roller remains locked in place (PS22=1) 5 sec after the secondary transfer outside roller motor (M20) is started.

7.8.9 Detecting the ITB Home Position

The machine is programmed to check the ITB home position to make sure that the image write start position is correct. It uses the ITB home position sensor (PS1, PS30) to check the home position detection surfaces (2 reflecting surfaces) found at the edge of the ITB using the following sequence of operation:

1. when a print command arrives, the DC controller rotates the ITB; upon detention of a reflecting surface, PS1 and PS30 send their respective home position detection signal to the DC controller (1_TOP_SNS_A, 1_TOP_SNS_B).
2. in response, the DC controller assumes that the detection signal that first arrives represents the home position (1_TOP1A; see Memo); then, it increases its count each time the next reflecting surface is detected (I_TOP2A, I_TOP3A, I_TOP4A, and so on).
3. in the case of full color printing, the DC controller generates the sub scanning sync signal (PVREQ) as many as 4 times based on these signals, and sends them to the main controller. Thereafter, the DC controller receives video data of individual colors 4 times to form images of individual colors at specific points of the ITB.


[2]
PS30
[2]
[1]
PS30
[2]
DC-CON
PS1
I_TOP_SNS_1
I_TOP_SNS_2

F-7-57

1 ITB
2 Reflecting surface

PS1: ITB home position sensor A
PS30: ITB home position sensor B
DC-CON: DC controller

Memo:

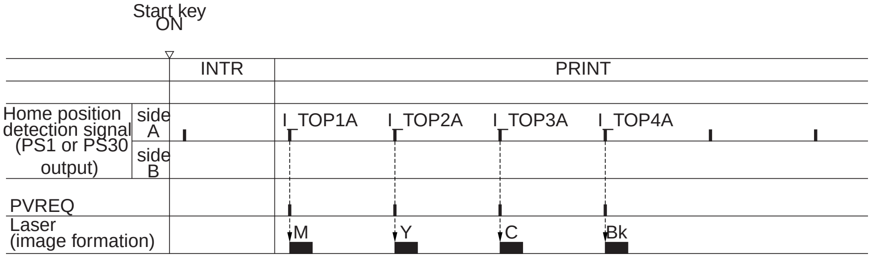
The side A home position detection signal (I_TOP1A) is the signal used when forming an image for a single page at a time.
The side B home position detection signal (I_TOP1B) is the signal used when forming images for 2 sides at a time.

The DC controller uses the output of the sensor (PS1 or PS30) that detects the reflecting surface of the ITB first as indicating the home position for side A. It then assumes the point reached a specific period of time after side A home position to be side B home position.

The machine uses the following sequence of operation to form images in different printing modes:

- Full Color, 1 Print

The machine generates the PVREQ (request) signal for individual colors with reference to the ITB home position detection signal (I_TOP1A) of side A, used for the formation of an image.

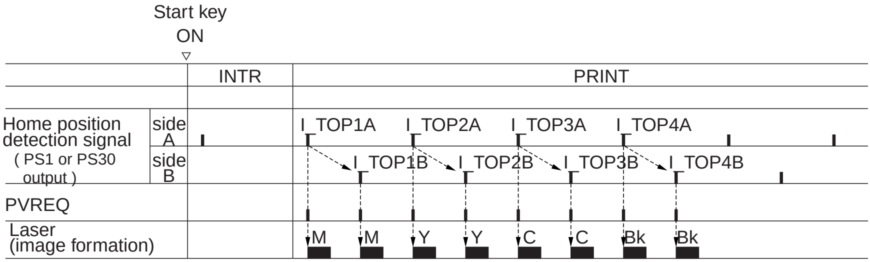

Start key ON
INTR
PRINT
Home position detection signal (PS1 or PS30 output)
side A
side B
I_TOP1A
I_TOP2A
I_TOP3A
I_TOP4A
PVREQ
Laser (image formation)
M
Y
C
Bk

F-7-58

- Full Color, 2 Prints, Continuous (2-page placement; see Note)

The machine generates the PVREQ (request) signal for individual colors based on the ITB home position detection signal (I_TOP1B) of side B and the home position detection signal (I_TOP1A) of side A, used for the formation of an image.

For the 1st side, the image is formed in sequence with reference to I_TOP1A; for the 2nd side, on the other hand, the images are made in sequence based on I_TOP1B.


Start key ON
INTR
PRINT
Home position detection signal (PS1 or PS30 output)
side A
side B
I_TOP1A
I_TOP2A
I_TOP3A
I_TOP4A
I_TOP1B
I_TOP2B
I_TOP3B
I_TOP4B
PVREQ
Laser (image formation)
M
M
Y
Y
C
C
Bk
Bk

F-7-59

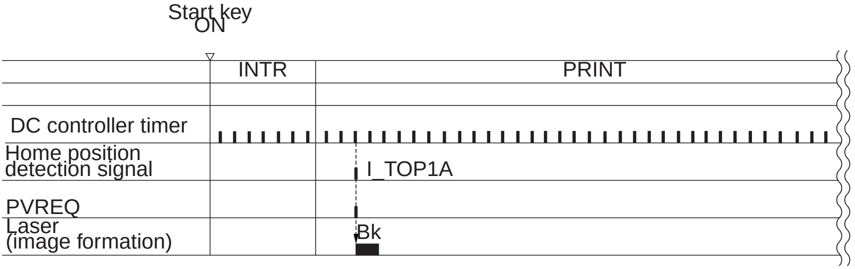
⚠

The term "2-paper placement" refers to printing in which images for 2 pages are formed on the ITB at the same time. It may be used for up to LTR size (sub scanning direction), limited by the interval between 2 home position detection signals.

- Mono Color, Continuous

In mono color printing, a single color is used so that the point of image formation on the ITB may vary; the DC controller, therefore, does not run an ITB home position search as it would in the case of color printing.

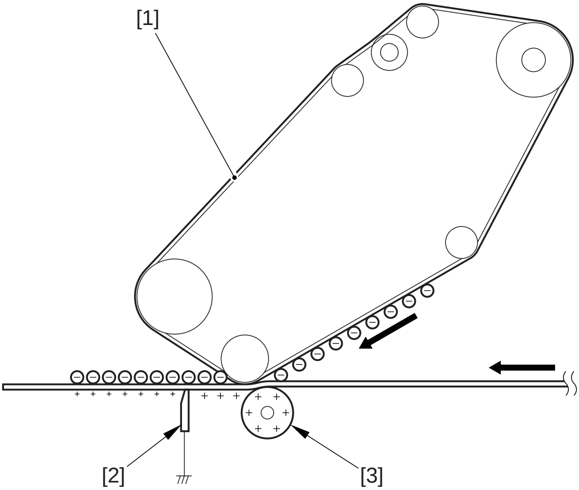
The machine determines the home position based on the reading of the timer of the DC controller, and generates the PVREQ (requires) signal, used for the formation of an image.


Start key ON
INTR
PRINT
DC controller timer
Home position detection signal
I_TOP1A
PVREQ
Laser (image formation)
Bk

F-7-60

7.8.10 Separation

The machine uses the curvature separation method, in which the rigidity of paper is used for its separation form the ITB. To assist the separation, the machine uses the static eliminator to reduce the charge on the back of paper, thus weakening the static bonding between the paper and the ITB.



F-7-61

1 ITB

2 Separation static eliminator

3 Secondary transfer outside roller

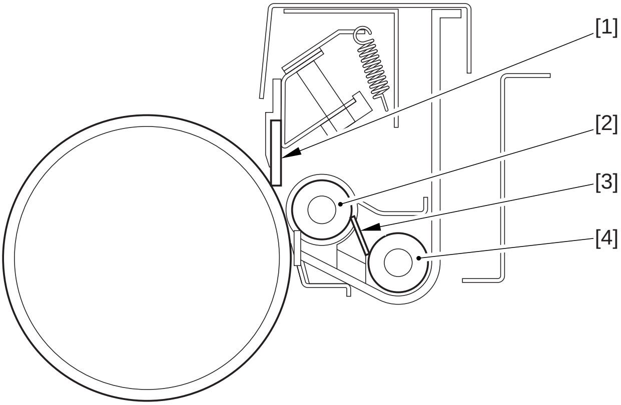
7.9 Photosensitive Drum Cleaning

7.9.1 Overview of the Drum Cleaning Unit

The drum cleaning unit is found next to the photosensitive drum inside the process unit, and it is equipped with the function of collecting residual toner from the photosensitive drum. The unit consists of 4 components, serving to clean the photosensitive drum in preparation for the next print cycle.

The residual toner collected by the unit is moved forward by the waste toner feedscrew for collection in the waste toner case fitted to the back fort the machine.

The following shows the arrangement of the major components:

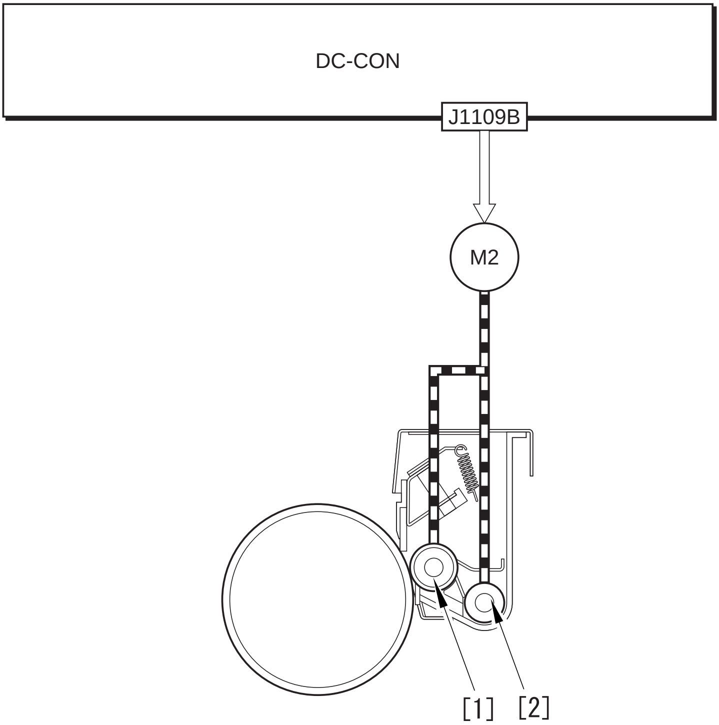


F-7-62

1 Cleaning blade
2 Magnet roller
3 Waste toner layer guide blade
4 Waste toner feedscrew

7.9.2 Controlling the Drum Cleaning Unit Drive Mechanism

The drum cleaning unit possesses 2 drive loads; they are controlled by the DC controller, and turned on when the ITB/drum motor (M2) goes on.



F-7-63

1 Magnet roller
2 Waste toner feedscrew

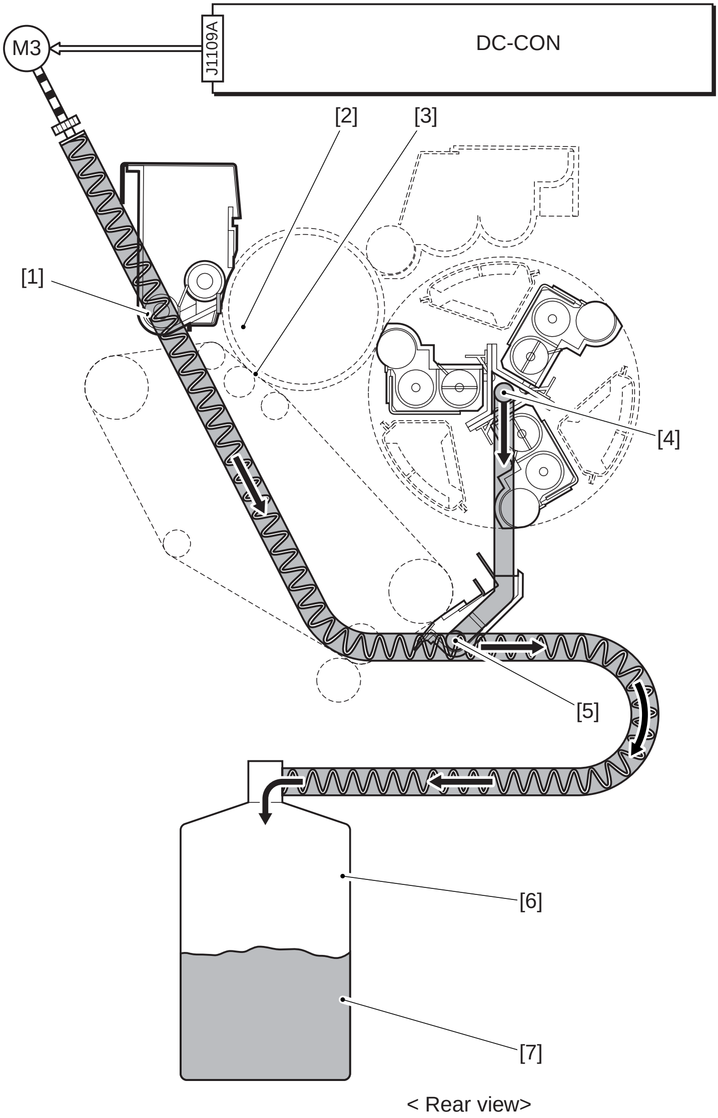
M2: ITB/drum motor
DC-CON: DC controller

7.10 Waste Toner Collection Mechanism

7.10.1 Collection of Waste Toner

The machine uses its waste toner bottle to collect waste toner from 3 imaging units (i.e., drum cleaning unit, color toner developing assembly, ITB cleaning unit). The mechanism of collection involves the DC controller, which drives the development motor (M3) to turn the screw inside the waste toner pipe.

The waste toner pipe is connected to the toner discharge outlet so that the rotation of M3 automatically moves the waste toner through the waste toner pipe to the waste toner bottle.


M3
J1109A
DC-CON
[1]
[2]
[3]
[4]
[5]
[6]
[7]
< Rear view>

F-7-64

[1] Drum cleaning unit discharge opening

[2] Waste toner tube

[3] Waste toner feedscrew
[4] Color developing unit discharge opening
[5] ITB cleaning unit discharge opening
[6] Waste toner bottle
[7] Waste toner
[8] Waste toner feedscrew gear
M3: developing motor
SW1: waste toner lock detecting switch
DC-CON: DC controller

7.10.2 Detecting the State of the Waste Toner Bottle (full)

The machine checks the state of the waste toner bottle to see if it is full and thus to prevent overflowing of waste toner. The waste toner bottle collects waste toner from 3 image formation units (drum cleaning unit, color toner developing assembly, and ITB cleaning unit).

The amount of waste toner is checked with reference to the soft counter reading kept by the DC controller, and the soft counter reading is based on computations of the following data:

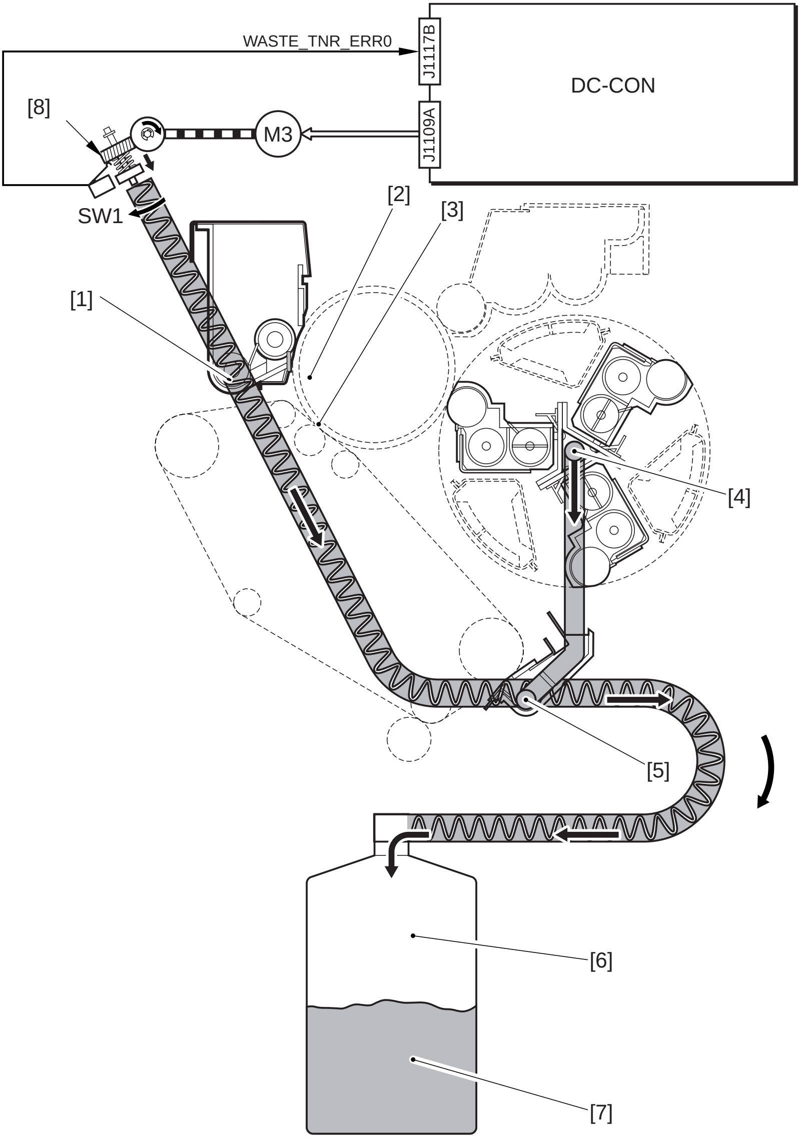
1. paper size
2. color mode (full or mono)
3. image ratio

The DC controller monitors the soft counter at all times, and executes the following operation when the reading exceeds the following:

T-7-18

Counter reading	Detection	Printer operation
210000 or higher	waste toner full caution	continues to operate (indicating a user message)*1.
250000 or higher	waste toner full	stops (indicting a service error)*2

*1: the message will read "Waste Toner Bottle Full" on the control panel.
*2: for details, see Memo.


WASTE_TNR_ERR0
J1117B
DC-CON
J1109A
M3
[8]
SW1
[2]
[3]
[1]
[4]
[5]
[6]
[7]

< Rear view >

F-7-65

[1] Drum cleaning unit discharge opening
[2] Waste toner tube
[3] Waste toner feedscrew
[4] Color developing unit discharge opening
[5] ITB cleaning unit discharge opening
[6] Waste toner bottle
[7] Waste toner
[8] Waste toner feedscrew gear
M3: developing motor
SW1: waste toner lock detecting switch
DC-CON: DC controller

Memo :

E013-0001 (waste toner full error)
indicates that the soft counter reading is 250000 or higher.

E013-0002 (waste toner feedscrew error)
indicates that the output of the waste toner lock detecting switch (SW1) is "1" for 1 sec or more. (If the waste toner feedscrew fails to rotate when the developing motor (M3) is driven, the waste toner feedscrew is pushed in the direction of the arrow, thus turning on SW1.)

⚠

1. The reading of the waste toner may be checked or reset using the following service mode item:
COPIER>COUNTER>MISC>WASTE-TNR

2. The timing of messages (waste toner full pre-warning, waste toner full warning) may be changed using the following serve mode item:

* to change the timing of indicating the waste toner full pre-warning, COPIER>ADJUST>MISC>WT-FL-LM (at time of shipment, set to 210000).

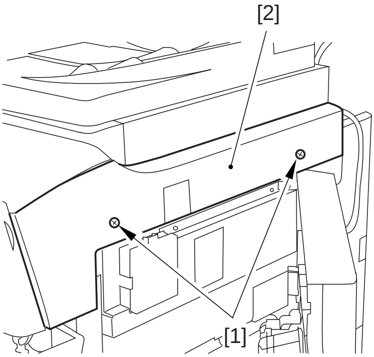
* to change the timing of indicating the waste toner full error, COPIER>ADJUST>MISC>WT-ER-LV (at time of shipment, set to 40000).

7.11 Parts Replacement Procedure

7.11.1 Process Unit

7.11.1.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

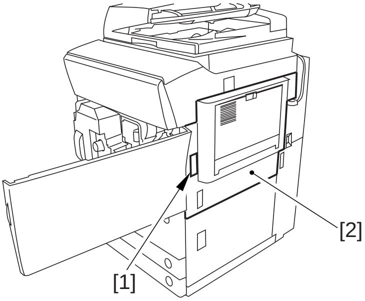


F-7-66

7.11.1.2 Freeing the Front Cover

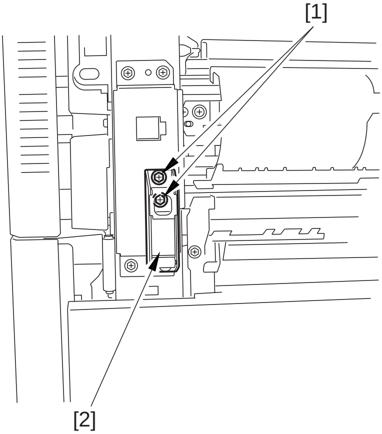
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-67

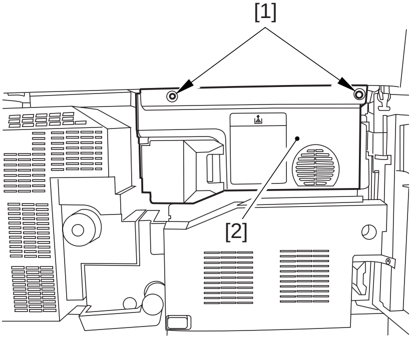
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-68

3) Slide out the fixing/feeding assembly

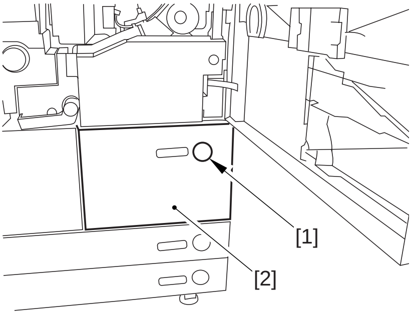
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-69

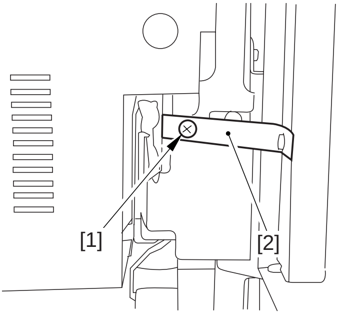
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



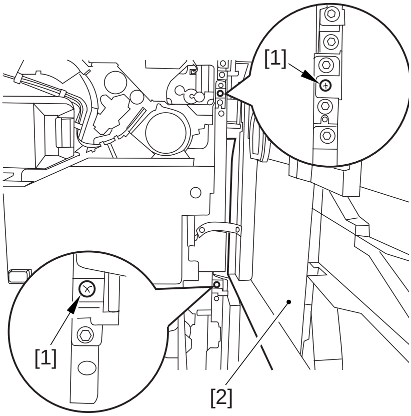
F-7-70

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-71

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

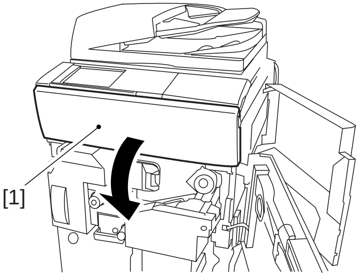


F-7-72

9) Close the right deck.

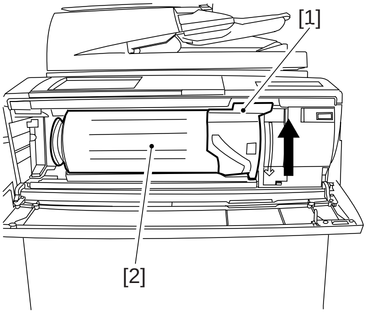
7.11.1.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



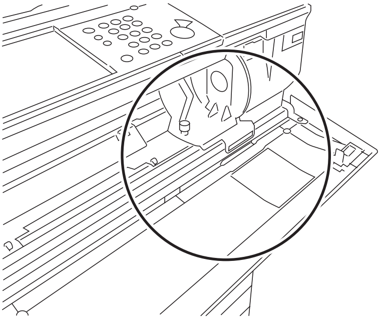
F-7-73

2) Shift down the lever [1], and detach the black toner bottle [2].



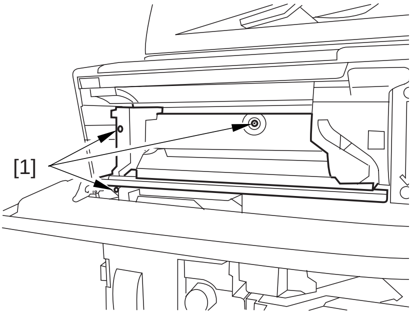
F-7-74

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



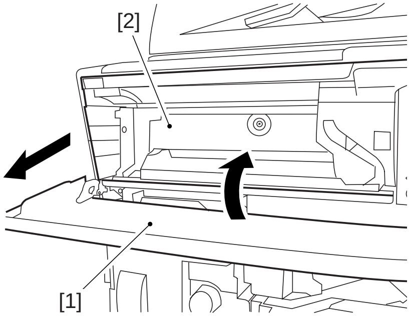
F-7-75

3) Remove the 3 screws [1].



F-7-76

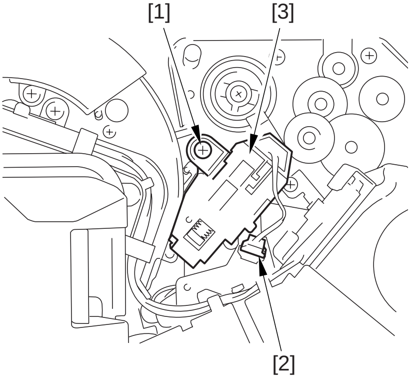
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-77

7.11.1.4 Removing the Pre-Transfer Charging Assembly

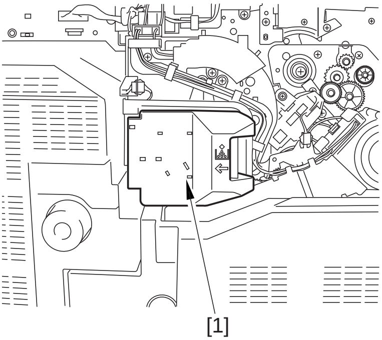
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-78

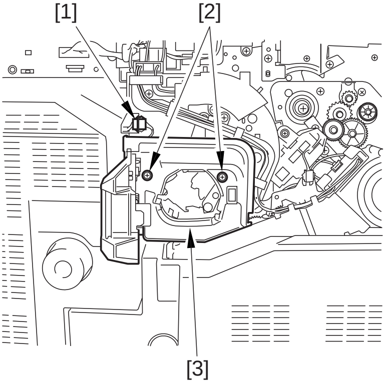
7.11.1.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-79

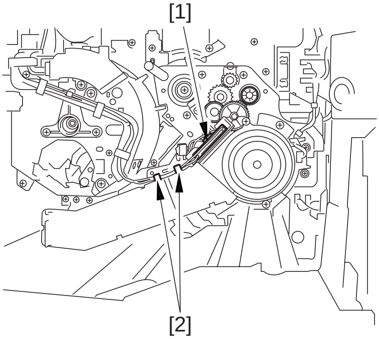
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-80

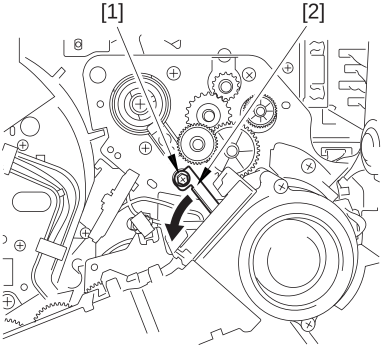
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



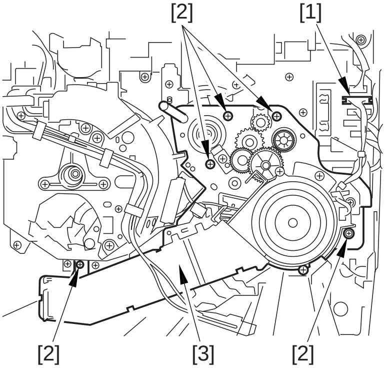
F-7-81

5) Remove the screw [1], and shift down the locking plate [2].



F-7-82

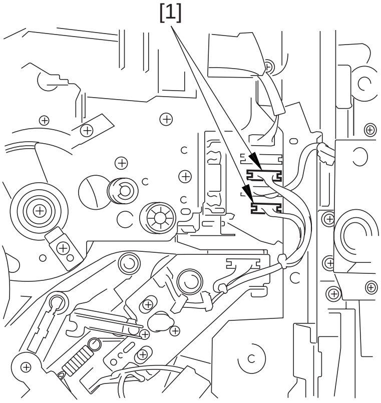
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-83

7.11.1.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].



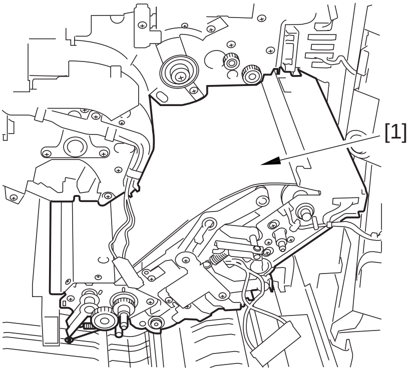
F-7-84

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer

assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

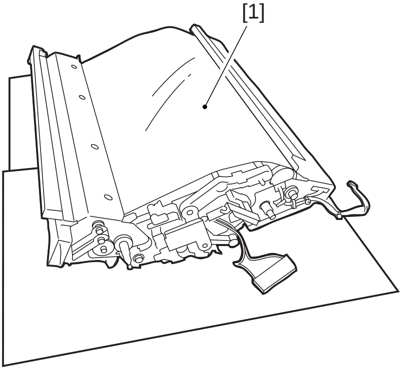
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-85

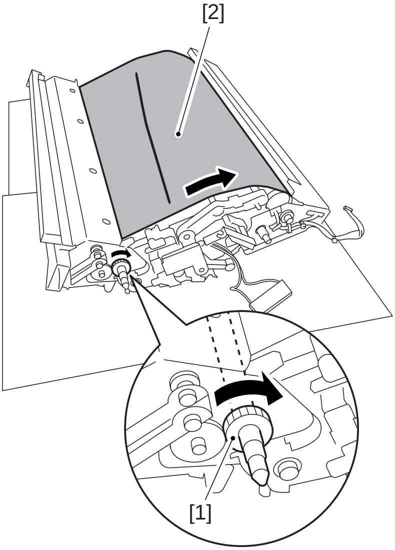
7.11.1.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



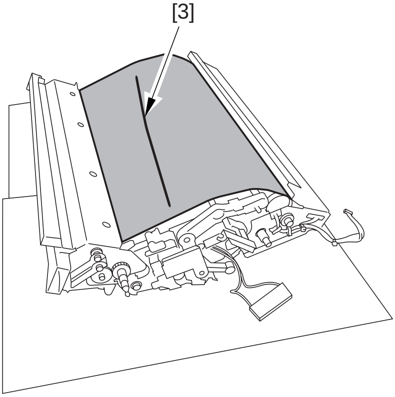
F-7-86

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



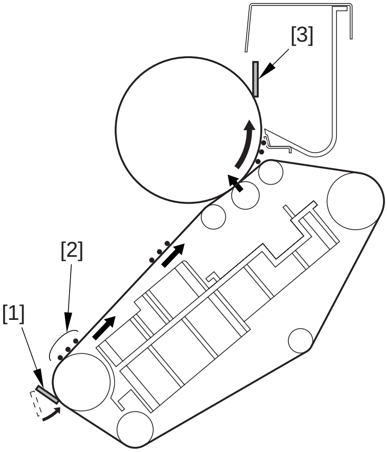
F-7-87

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-88

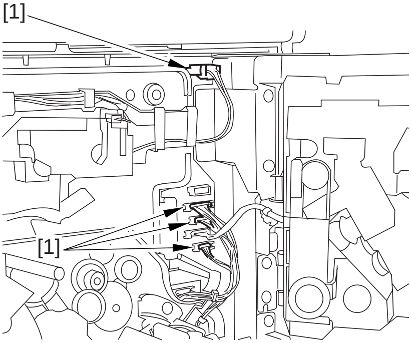
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-89

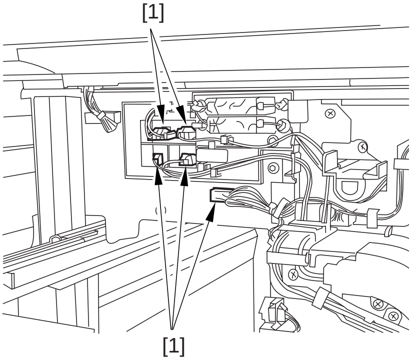
7.11.1.8 Removing the Process Unit

1) Disconnect the 2 connectors [1] found at the upper right.



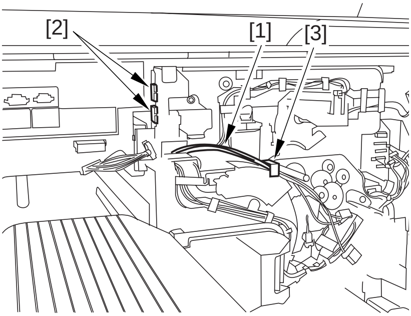
F-7-90

2) Disconnect the 5 connectors [1] found at the upper left.



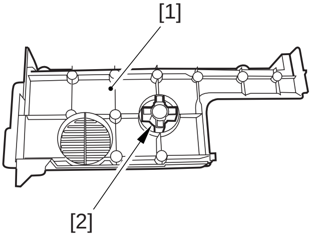
F-7-91

3) After freeing the cable from the 2 wire saddles [2], fix the high-voltage connector cable [1] in place using the cable hook [3] to avoid trapping it during the work.



F-7-92

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from its back.

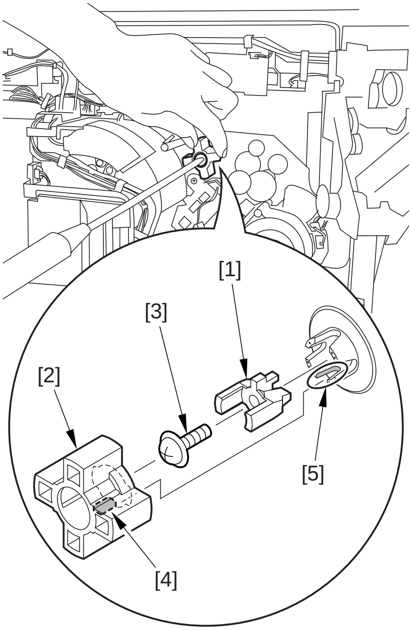


F-7-93

5) Hold the drum fixing member [1] in place using the drum stop tool [2]. Then, using a screwdriver, remove the drum fixing screw [3].

⚠

1: As shown in the figure, be sure to remove the screw on the protrusion [4] of the drum stop only after matching it against the notch [5] in the drum flange.



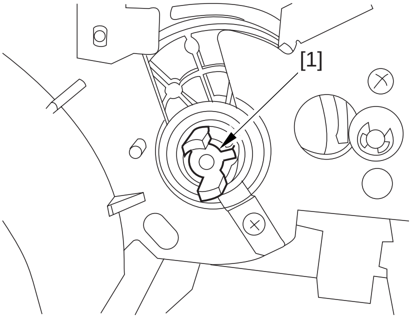
F-7-94

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

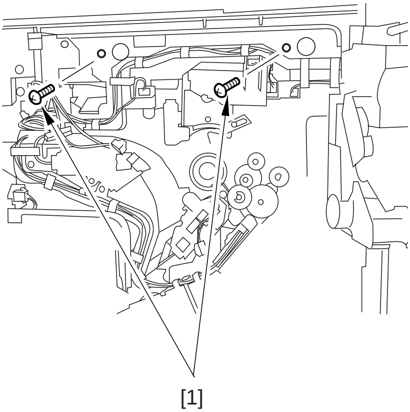
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of precision pliers, detach the drum fixing member [1].



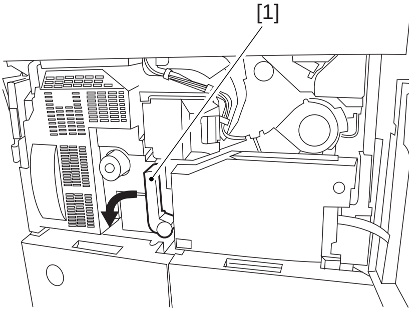
F-7-95

7) Remove the 2 binding screws [1].



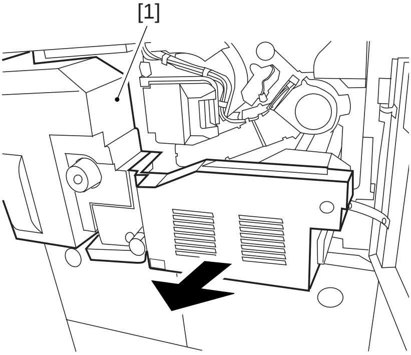
F-7-96

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



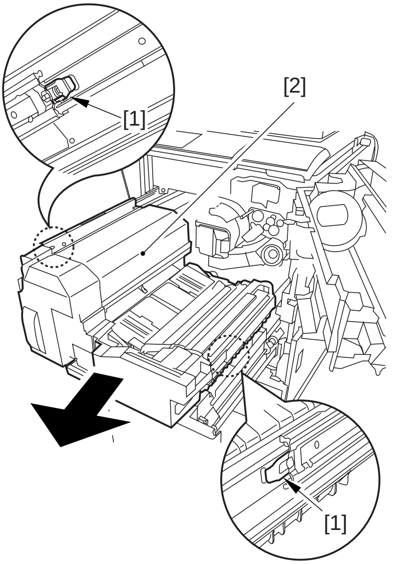
F-7-97

9) Slide out the fixing/feeding assembly [1] toward the front.



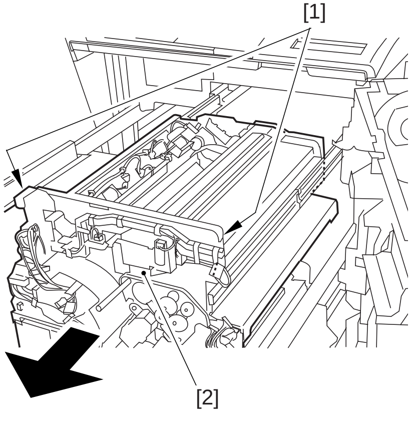
F-7-98

10) While pushing on the 2 drawer hooks [1] found on both sides of the fixing/feeding assembly, pull out the fixing/feeding assembly [2] fully.



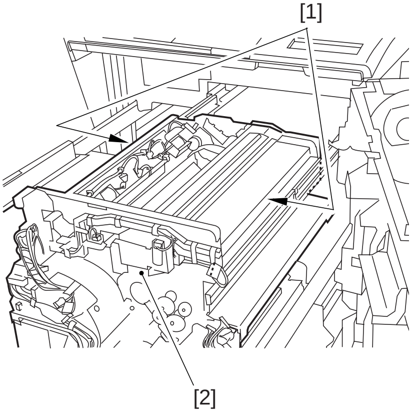
F-7-99

11) Lift both ends [1] of the process unit slightly, and fully pull out the process unit [2] toward the front.



F-7-100

12) Lift the 2 locations [1] indicated in the diagram, and detach the process unit [2].



F-7-101

7.11.1.9 Points to Note When Mounting the Process Unit

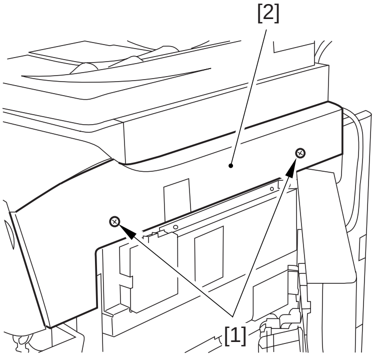
When using the drum fixing screw, be sure always to use the drum stop tool. Otherwise, the photosensitive drum can rotate clockwise, causing the edge of the blade to bend over and, ultimately, leading to cleaning faults. Be sure also to hold the drum stop tool in place while removing the drum fixing screw.

The drum stop tool is attached to the back of the process unit cover.

7.11.2 Pre-exposure LED Array

7.11.2.1 Preventing Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

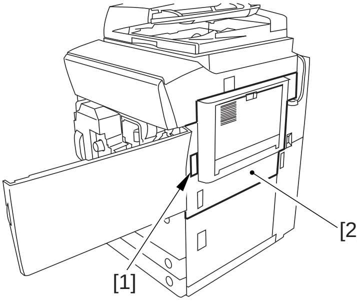


F-7-102

7.11.2.2 Freeing the Front Cover

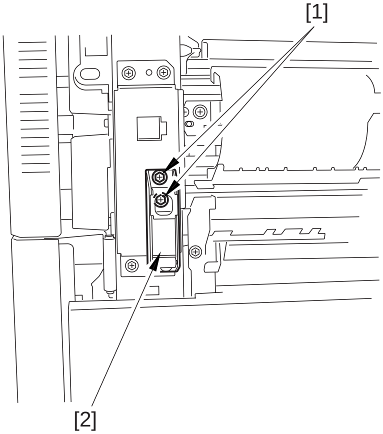
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-103

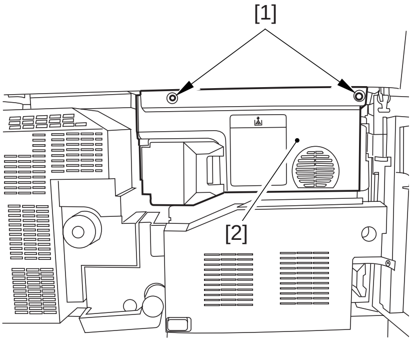
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-104

3) Slide out the fixing/feeding assembly

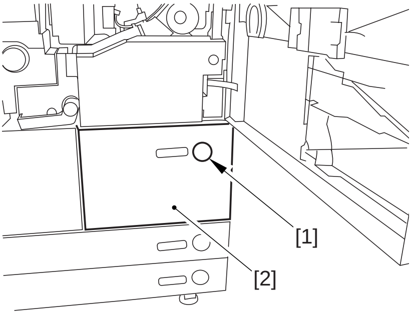
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-105

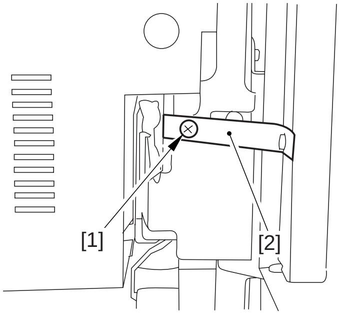
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



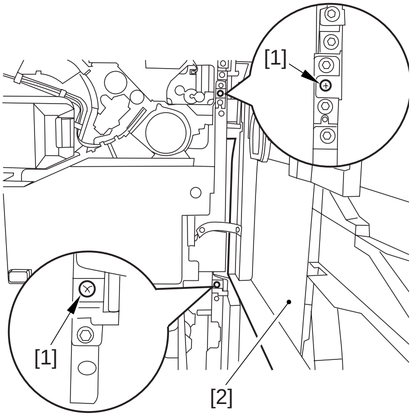
F-7-106

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-107

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

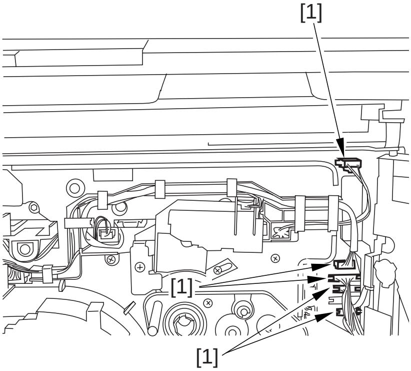


F-7-108

9) Close the right deck.

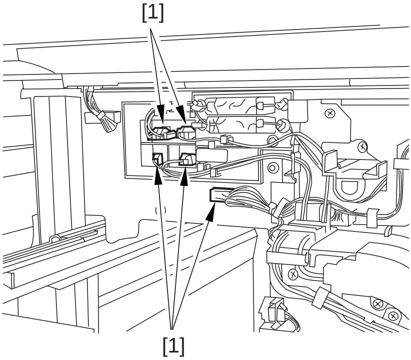
7.11.2.3 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



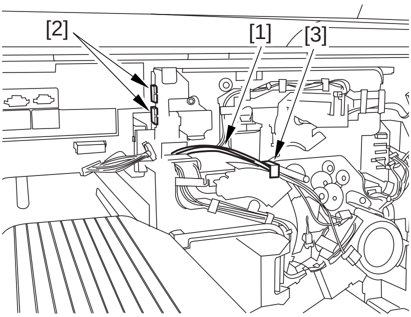
F-7-109

2) Disconnect the 5 connectors [1] found at the upper left.



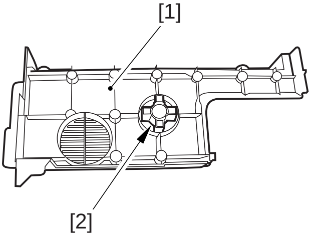
F-7-110

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-111

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

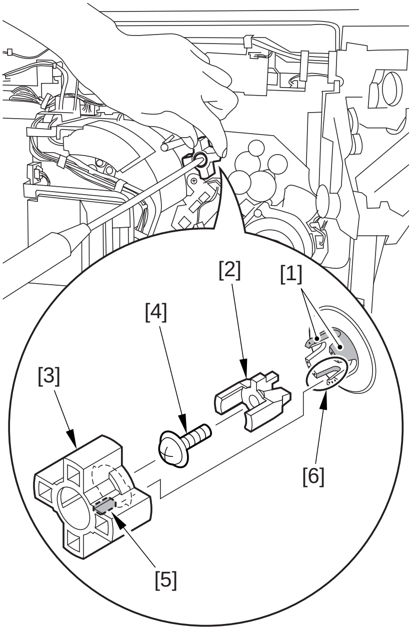


F-7-112

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



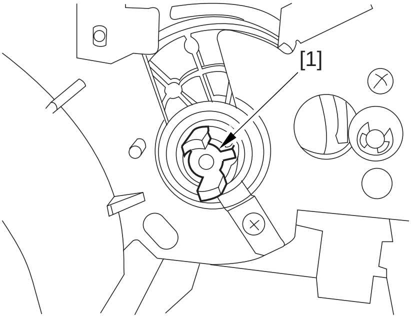
F-7-113

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

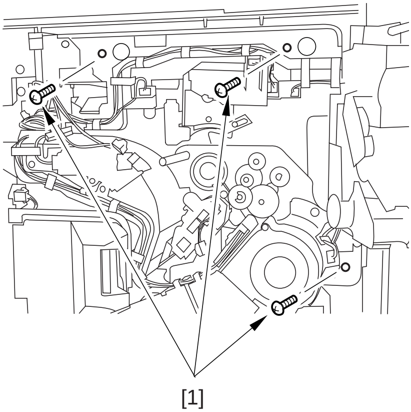
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



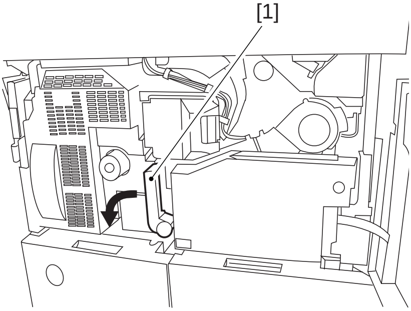
F-7-114

7) Remove the 3 binding screws (M4x8) [1].



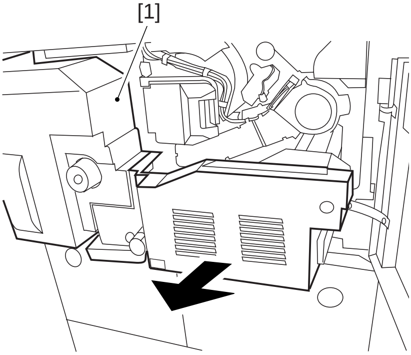
F-7-115

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



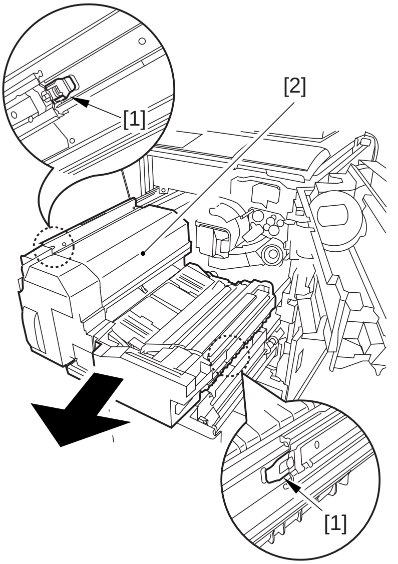
F-7-116

9) Slide out the fixing/feeding assembly [1] toward the front.



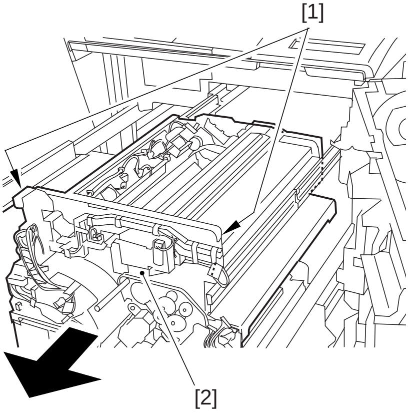
F-7-117

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-118

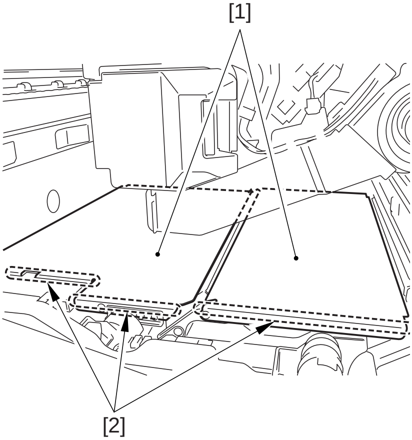
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



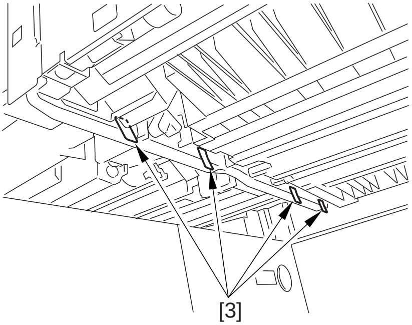
F-7-119

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



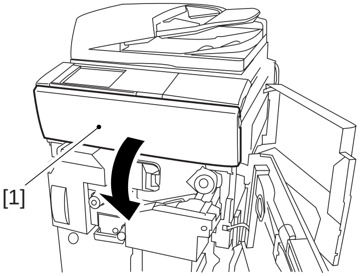
F-7-120



F-7-121

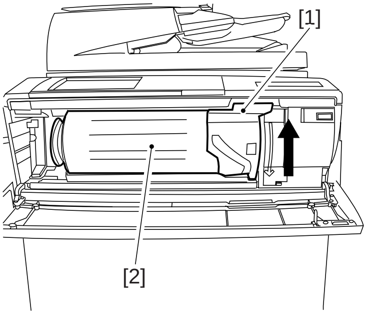
7.11.2.4 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



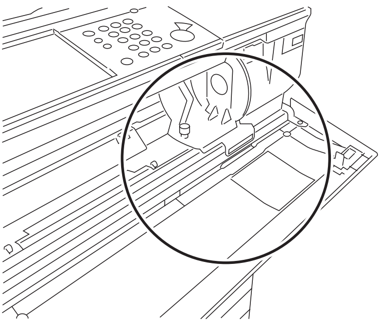
F-7-122

2) Shift down the lever [1], and detach the black toner bottle [2].



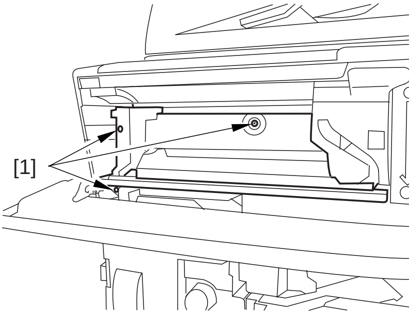
F-7-123

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



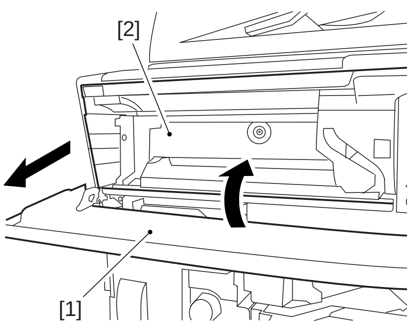
F-7-124

3) Remove the 3 screws [1].



F-7-125

4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



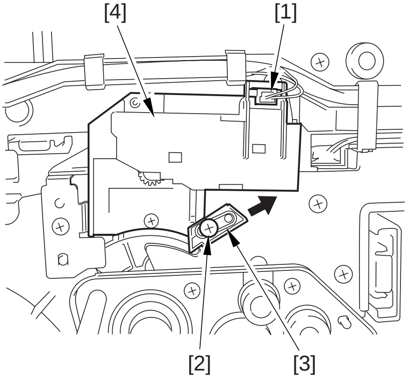
F-7-126

7.11.2.5 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

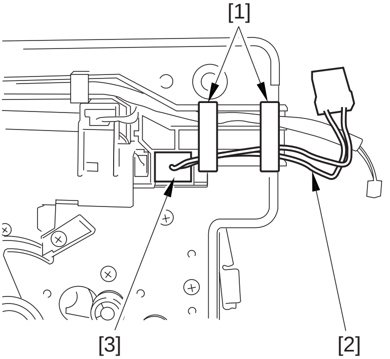
3) Detach the primary charging assembly [4] from the machine.



F-7-127

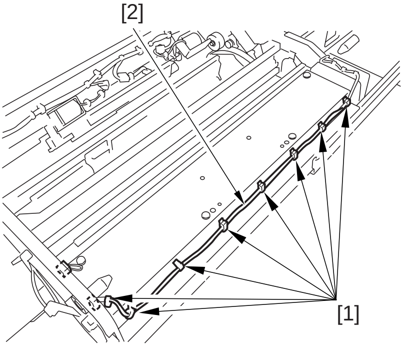
7.11.2.6 Removing the Photosensitive Drum Cleaning Unit

1) Open the 2 cable clamps [1], and lead the harness [2] through the opening [3] in the process unit.



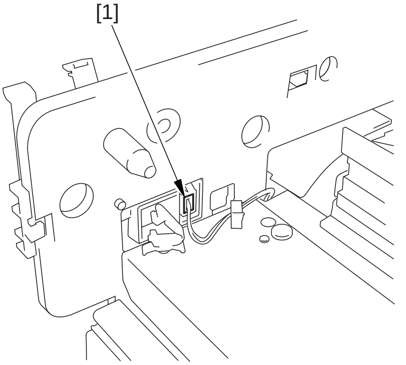
F-7-128

2) Open the 8 cable clamps [1], and move the harness [2] out of the way.



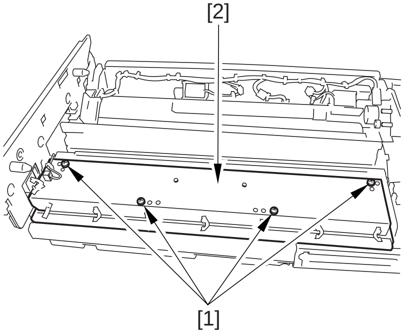
F-7-129

3) Disconnect the connector [1].



F-7-130

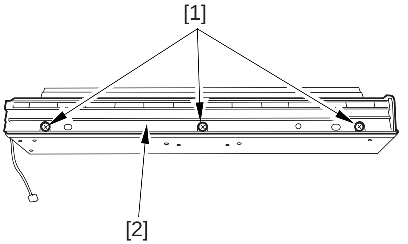
4) Remove the 4 screws [1], and detach the photosensitive drum cleaning unit [2].



F-7-131

7.11.2.7 Removing the Pre-Exposure LED Unit

1) Remove the 3 screws [1], and detach the pre-exposure LED unit.

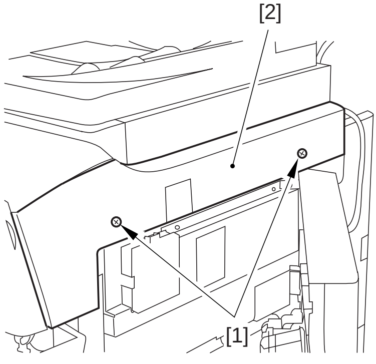


F-7-132

7.11.3 Primary Charging Assembly

7.11.3.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

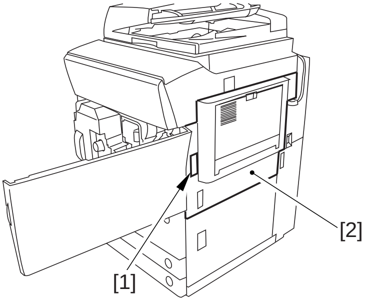


F-7-133

7.11.3.2 Freeing the Front Cover

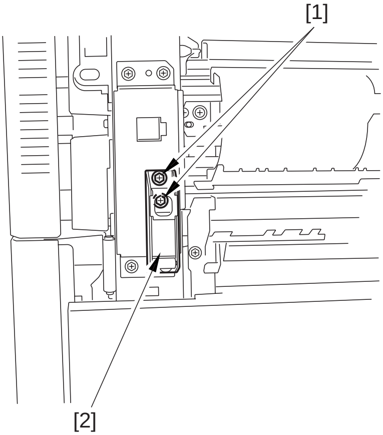
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-134

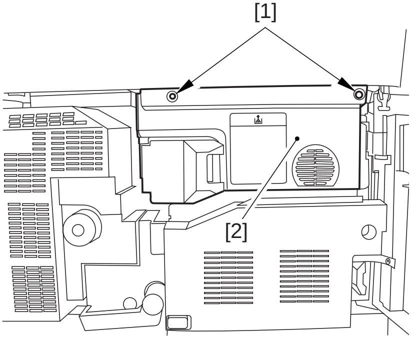
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-135

3) Slide out the fixing/feeding assembly

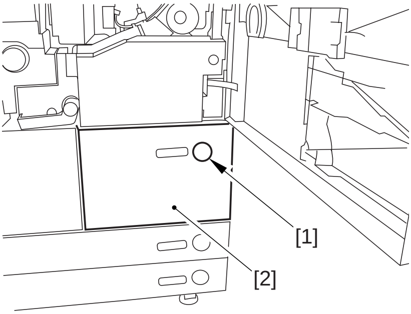
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-136

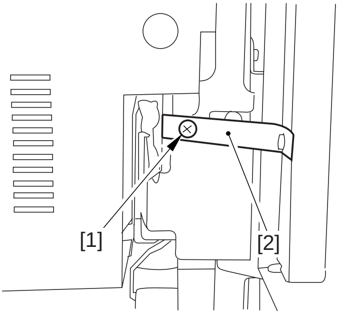
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



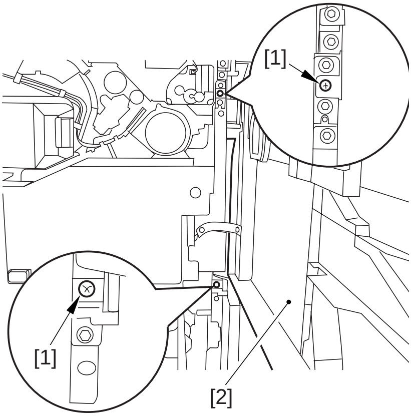
F-7-137

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-138

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

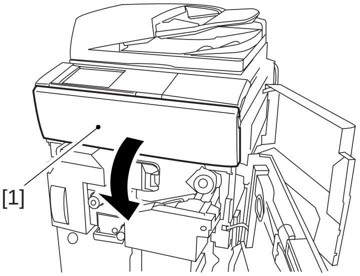


F-7-139

9) Close the right deck.

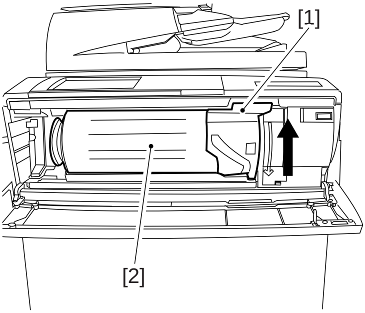
7.11.3.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



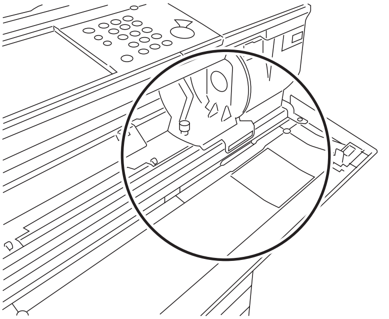
F-7-140

2) Shift down the lever [1], and detach the black toner bottle [2].



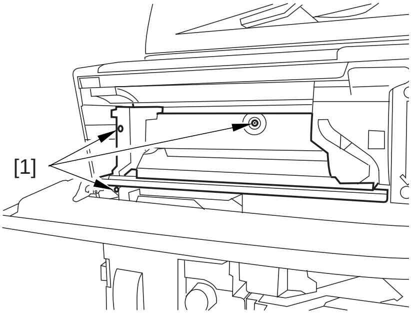
F-7-141

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



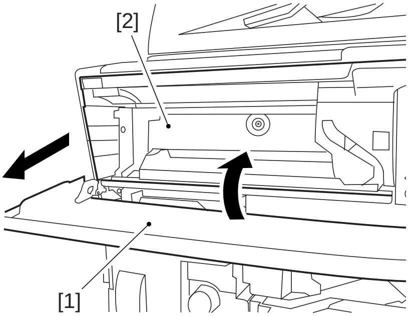
F-7-142

3) Remove the 3 screws [1].



F-7-143

4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



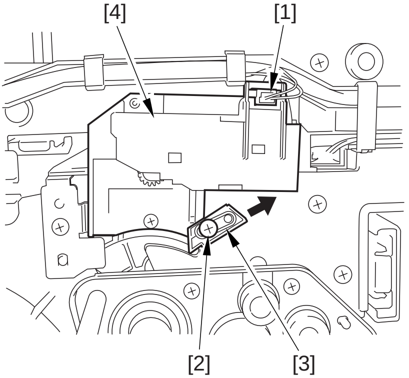
F-7-144

7.11.3.4 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

3) Detach the primary charging assembly [4] from the machine.

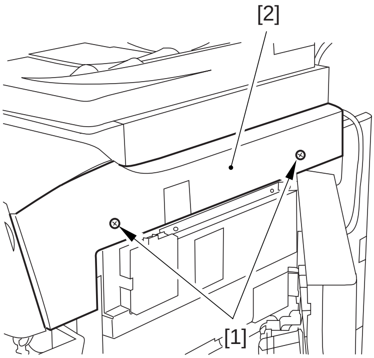


F-7-145

7.11.4 Primary Charging Assembly Cleaning Motor

7.11.4.1 Removing the Right Cover (upper)

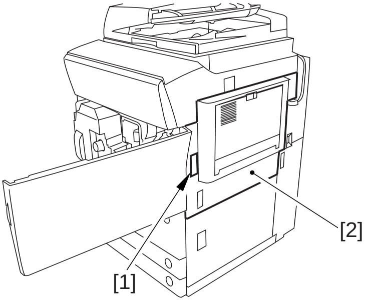
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-146

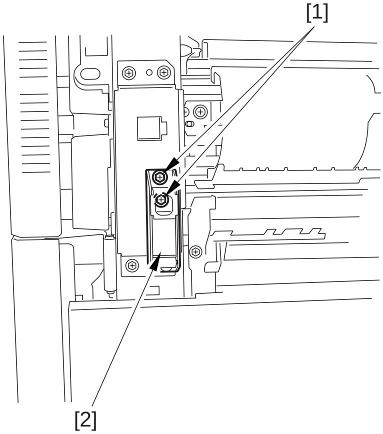
7.11.4.2 Freeing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



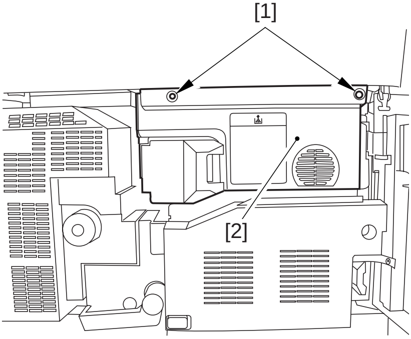
F-7-147

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-148

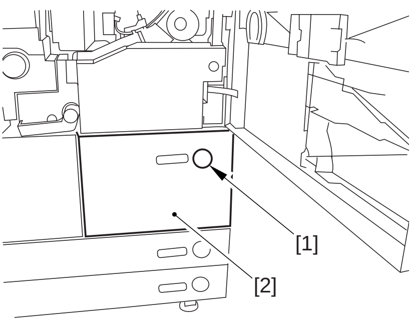
3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-149

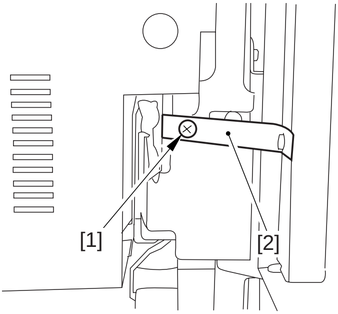
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



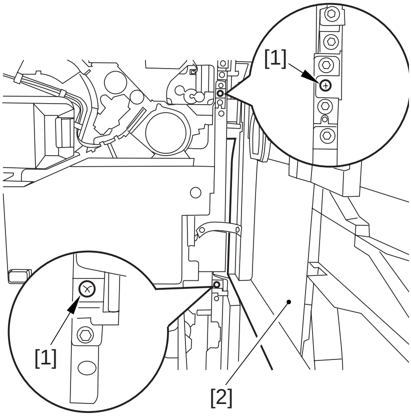
F-7-150

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-151

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

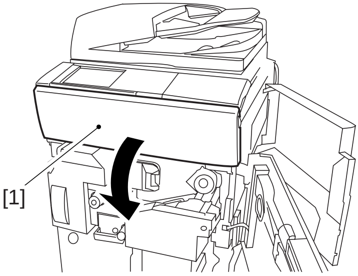


F-7-152

9) Close the right deck.

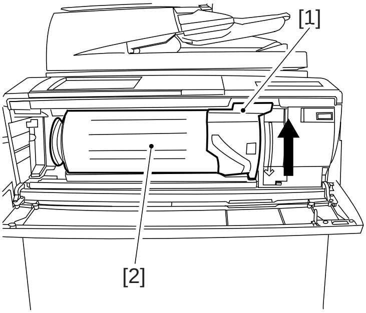
7.11.4.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



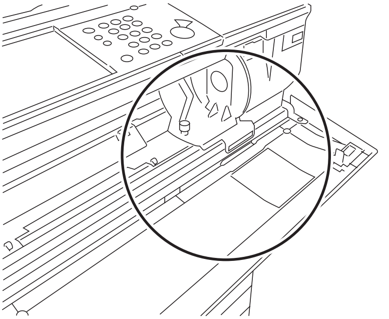
F-7-153

2) Shift down the lever [1], and detach the black toner bottle [2].



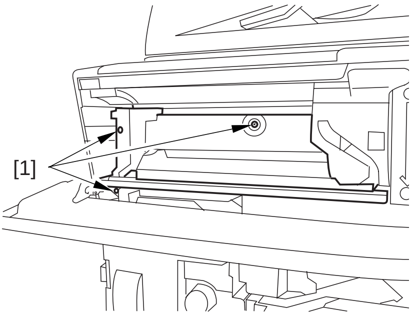
F-7-154

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



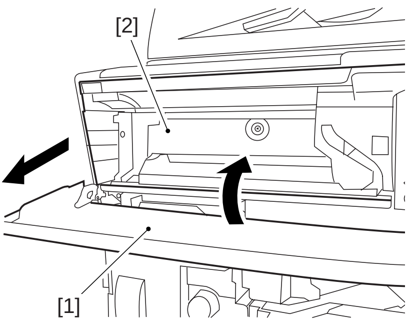
F-7-155

3) Remove the 3 screws [1].



F-7-156

4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



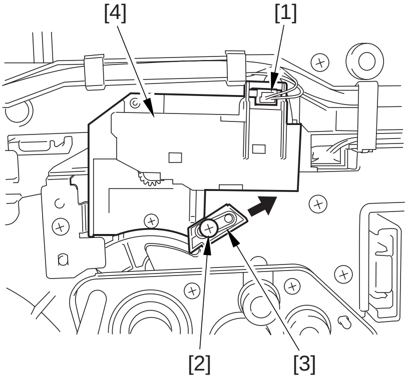
F-7-157

7.11.4.4 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

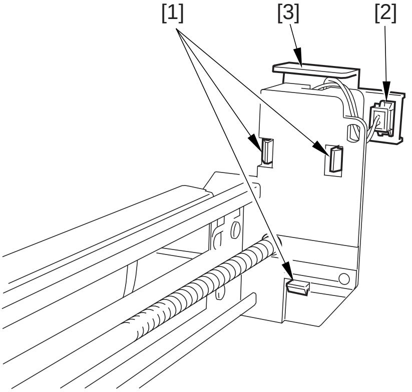
3) Detach the primary charging assembly [4] from the machine.



F-7-158

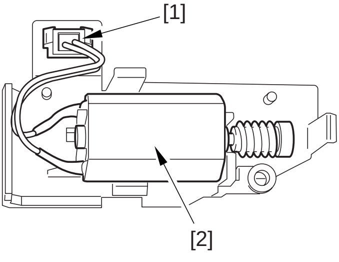
7.11.4.5 Removing the Primary Charging Wire Cleaning Motor

1) Free the 3 claws [3], and disconnect the connector [2]; then, detach the motor cover [3].



F-7-159

2) Turn over the motor cover, and disconnect the connector [1]; then, detach the primary charging wire cleaning motor [2].



F-7-160

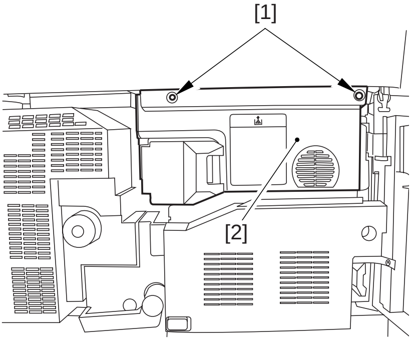
7.11.5 Pre-transfer Charging Assembly

7.11.5.1 Removing the Pre-Transfer Charging Assembly

1) Open the front cover,

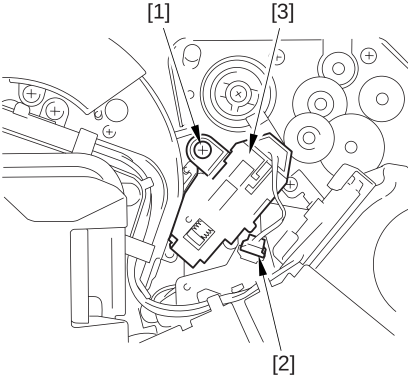
2) Slide out the fixing/feeding assembly.

3) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-161

4) Remove the screw [1], and disconnect the connector [2]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-162

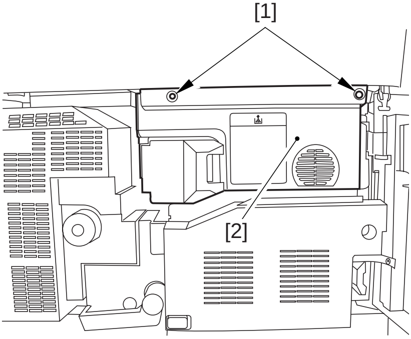
7.11.6 Pre-transfer Charging Assembly Cleaning Motor

7.11.6.1 Removing the Pre-Transfer Charging Assembly

1) Open the front cover,

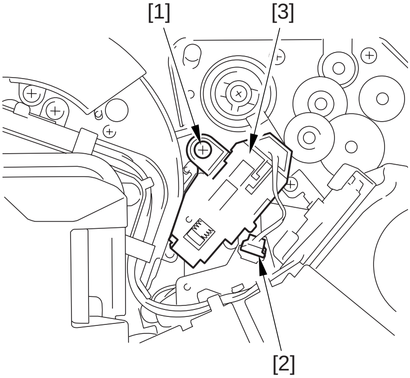
2) Slide out the fixing/feeding assembly.

3) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-163

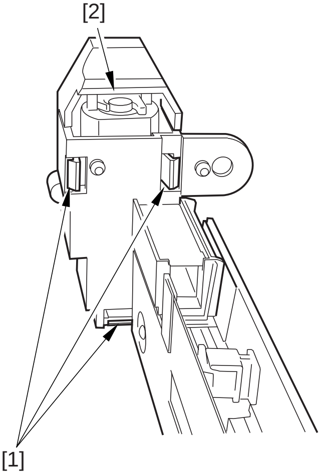
4) Remove the screw [1], and disconnect the connector [2]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-164

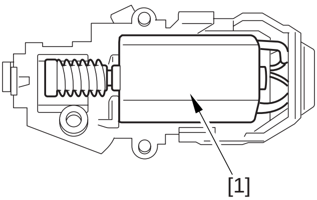
7.11.6.2 Removing the Pre-Transfer Charging Wire Cleaning Motor

1) Free the 3 claws [1], and detach the motor cover [2].



F-7-165

2) Turn over the motor cover, and detach the pre-transfer charging wire cleaning motor from the motor cover.

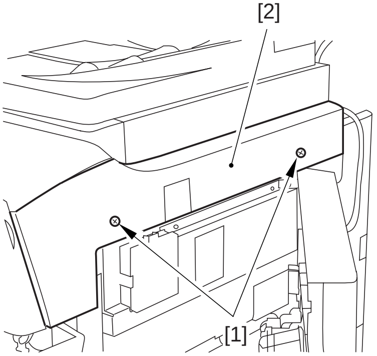


F-7-166

7.11.7 Photosensitive Drum Cleaning Unit

7.11.7.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

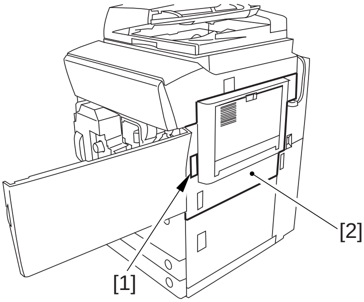


F-7-167

7.11.7.2 Freeing the Front Cover

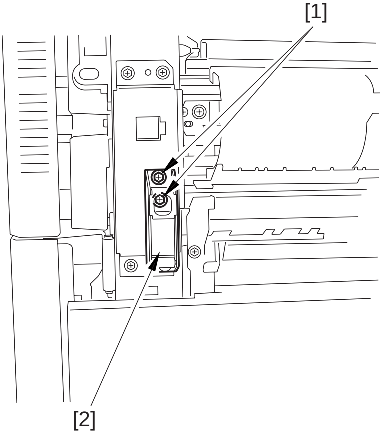
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-168

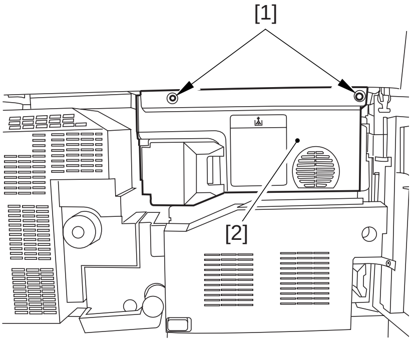
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-169

3) Slide out the fixing/feeding assembly

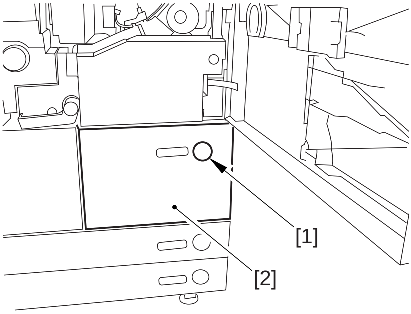
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-170

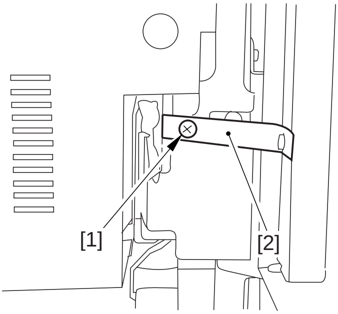
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



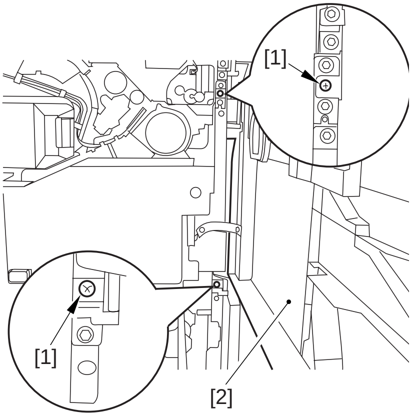
F-7-171

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-172

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

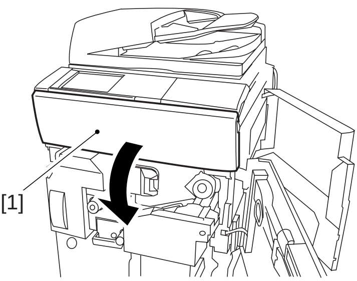


F-7-173

9) Close the right deck.

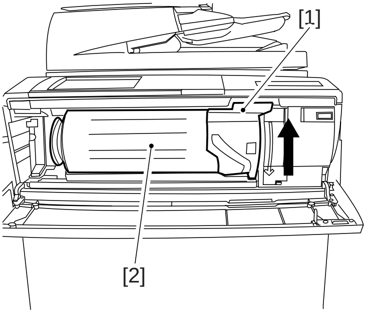
7.11.7.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



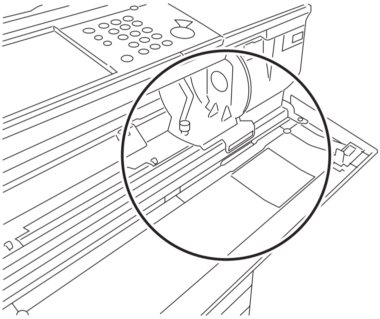
F-7-174

2) Shift down the lever [1], and detach the black toner bottle [2].



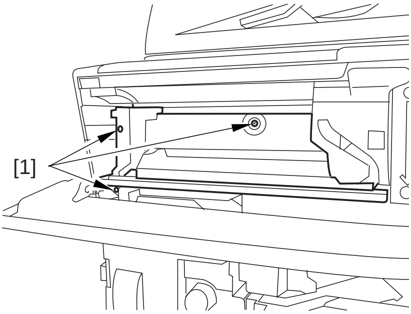
F-7-175

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



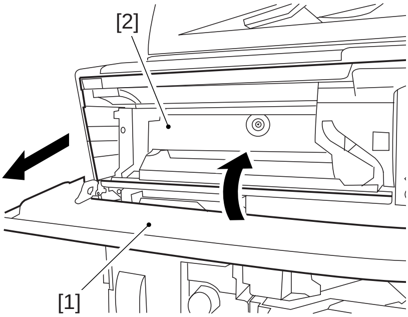
F-7-176

3) Remove the 3 screws [1].



F-7-177

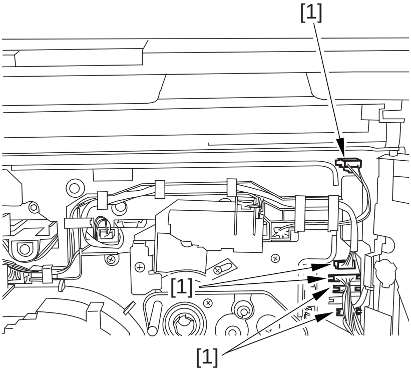
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-178

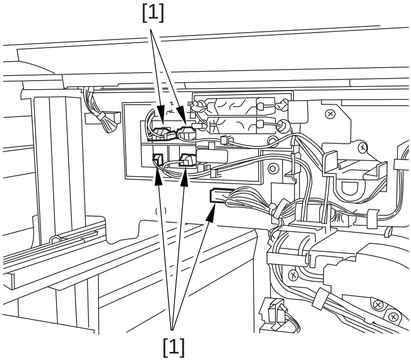
7.11.7.4 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



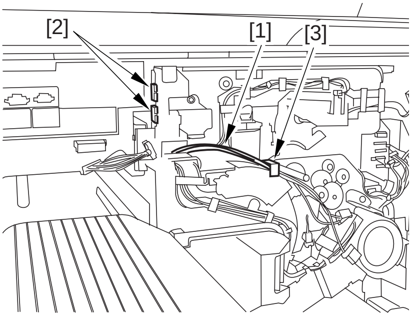
F-7-179

2) Disconnect the 5 connectors [1] found at the upper left.



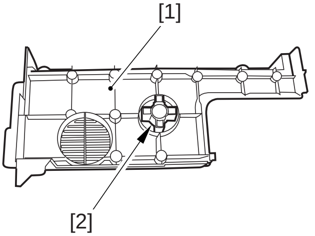
F-7-180

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-181

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

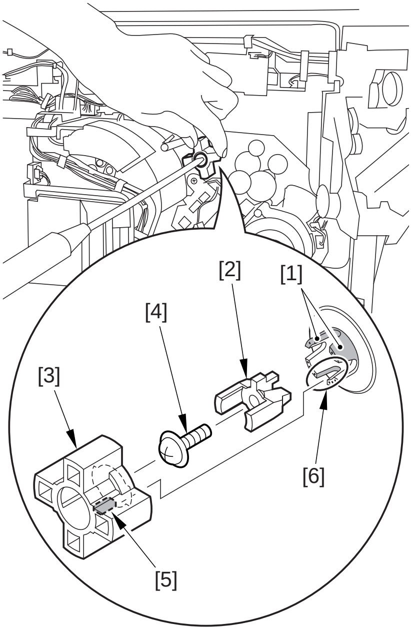


F-7-182

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

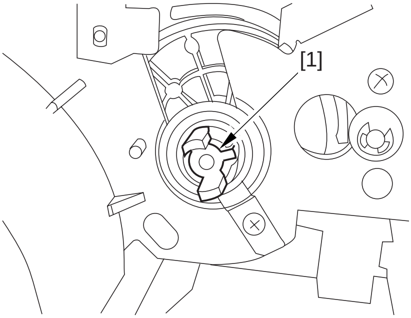
1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



F-7-183

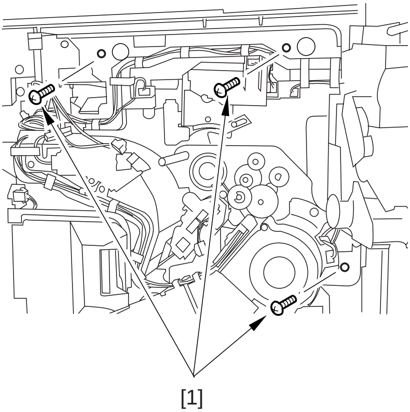
2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.
In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



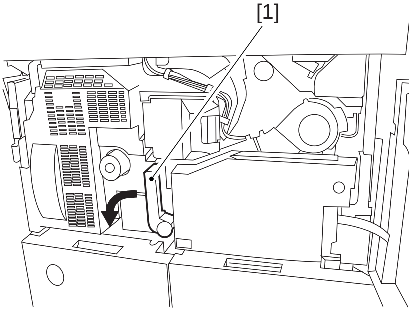
F-7-184

7) Remove the 3 binding screws (M4x8) [1].



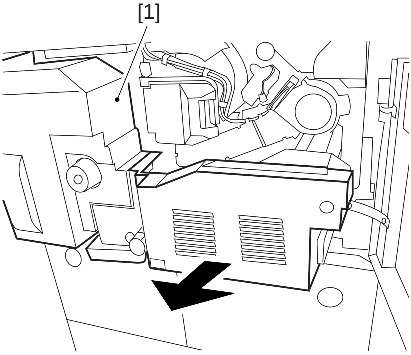
F-7-185

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



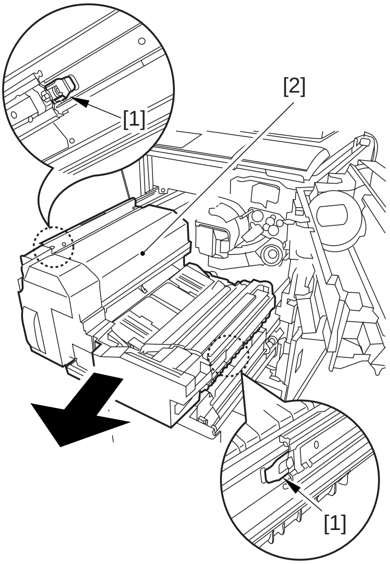
F-7-186

9) Slide out the fixing/feeding assembly [1] toward the front.



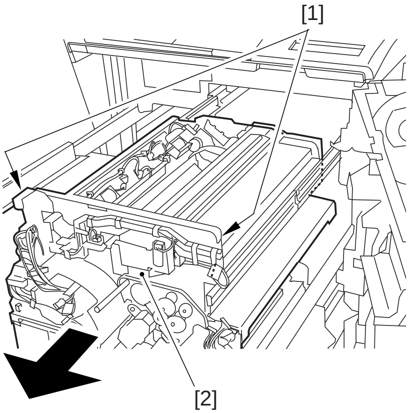
F-7-187

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-188

11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].

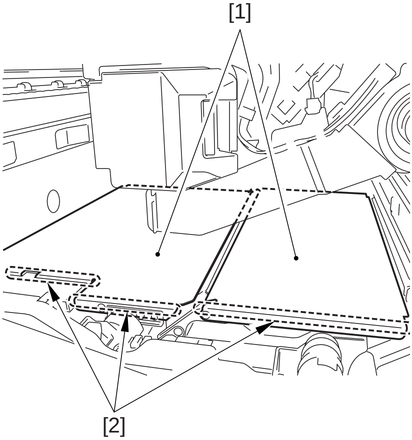


F-7-189

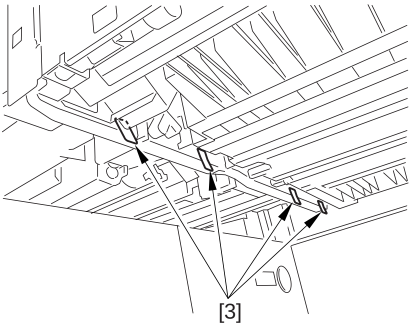
When you have slid out the process unit,

check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-190



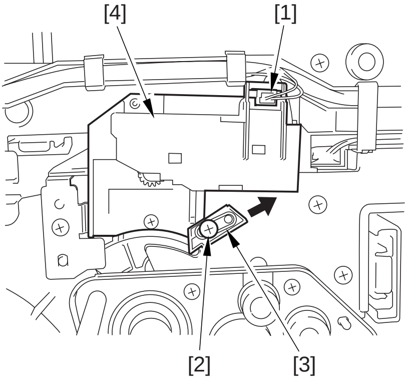
F-7-191

7.11.7.5 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

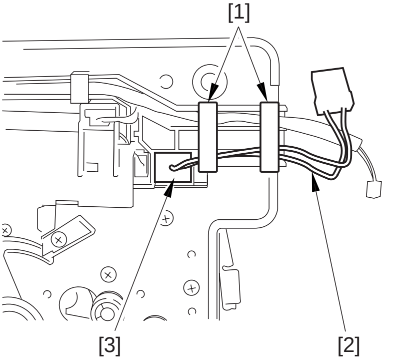
3) Detach the primary charging assembly [4] from the machine.



F-7-192

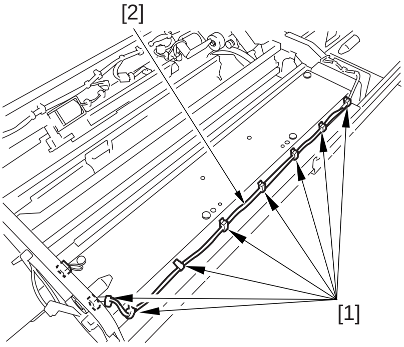
7.11.7.6 Removing the Photosensitive Drum Cleaning Unit

1) Open the 2 cable clamps [1], and lead the harness [2] through the opening [3] in the process unit.



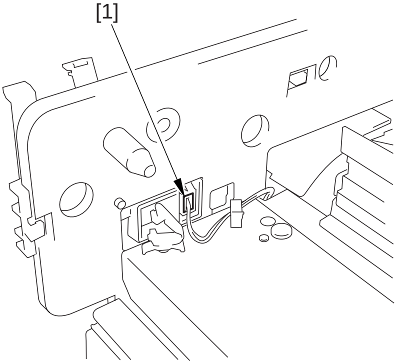
F-7-193

2) Open the 8 cable clamps [1], and move the harness [2] out of the way.



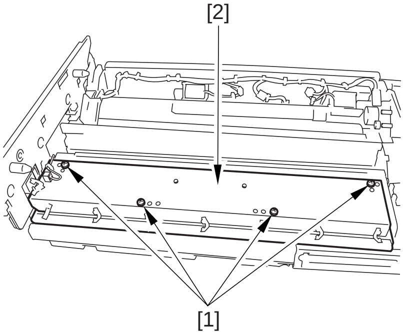
F-7-194

3) Disconnect the connector [1].



F-7-195

4) Remove the 4 screws [1], and detach the photosensitive drum cleaning unit [2].



F-7-196

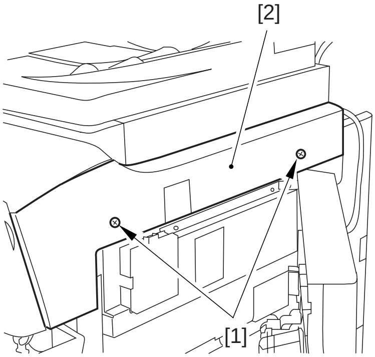
7.11.7.7 Points to Note When Mounting the Photosensitive Drum Cleaning Unit

⚠ When mounting the photosensitive drum cleaning unit, take care not to rotate it in reverse direction to prevent soiling by the scoop-up sheet. (The drum is designed to rotate counterclockwise.)

7.11.8 Photosensitive Drum

7.11.8.1 Removing the Right Color (upper)

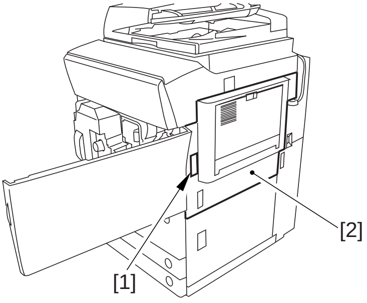
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-197

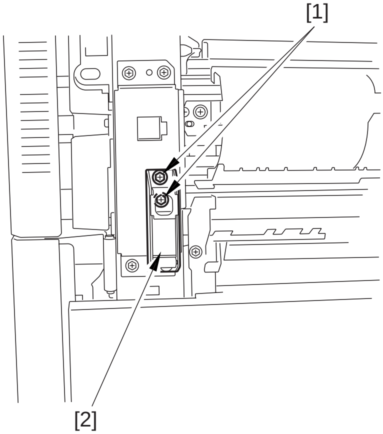
7.11.8.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



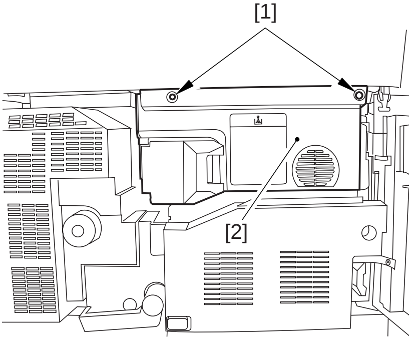
F-7-198

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-199

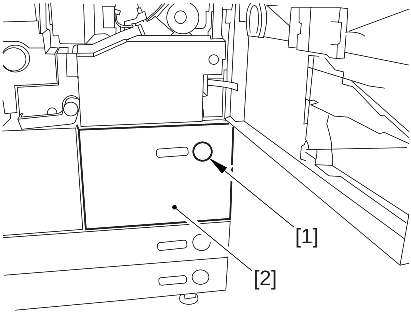
3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-200

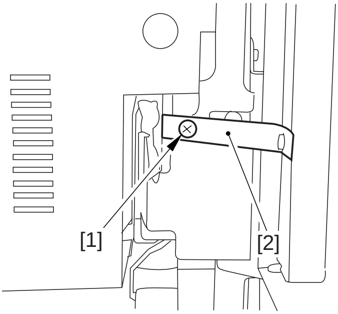
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



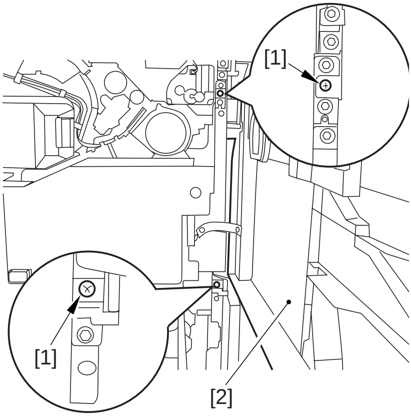
F-7-201

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-202

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

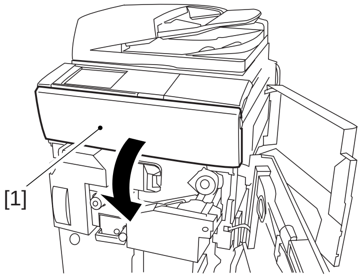


F-7-203

9) Close the right deck.

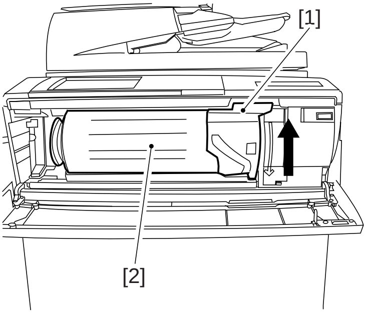
7.11.8.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



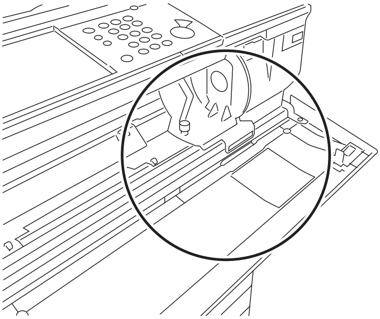
F-7-204

2) Shift down the lever [1], and detach the black toner bottle [2].



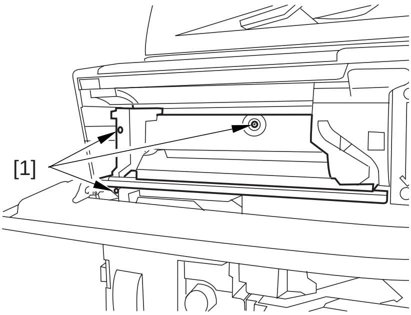
F-7-205

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



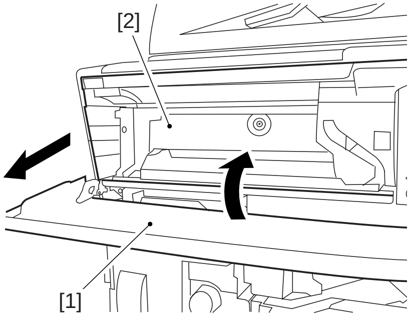
F-7-206

3) Remove the 3 screws [1].



F-7-207

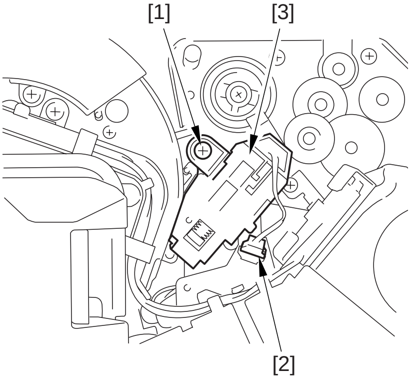
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-208

7.11.8.4 Removing the Pre-Transfer Charging Assembly

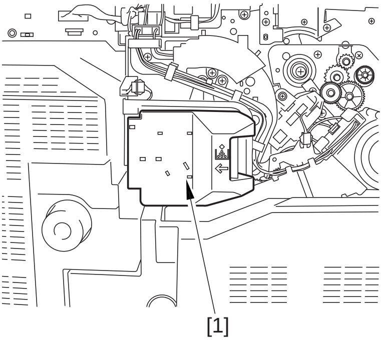
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-209

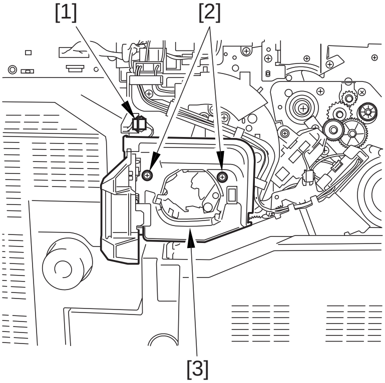
7.11.8.5 Removing the Transfer Charging Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-210

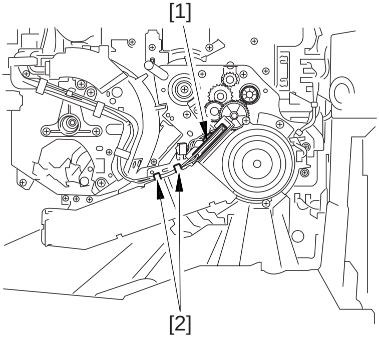
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-211

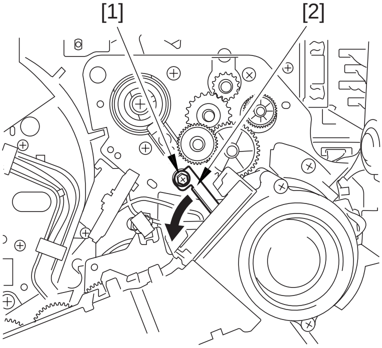
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



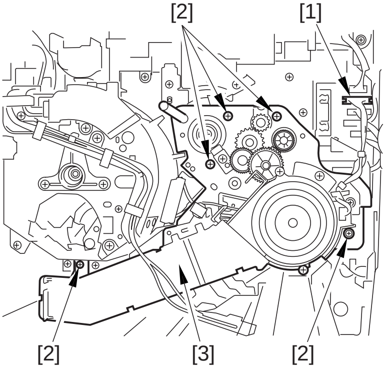
F-7-212

5) Remove the screw [1], and shift down the locking plate [2].



F-7-213

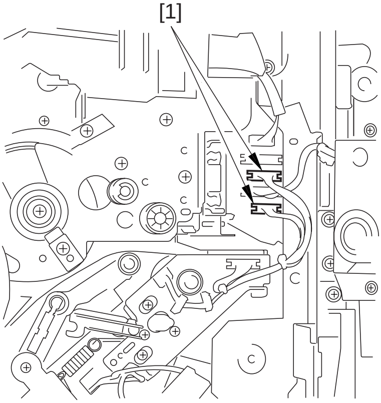
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-214

7.11.8.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].



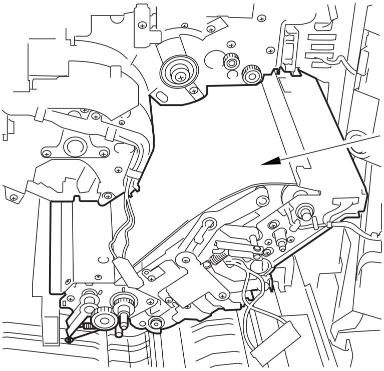
F-7-215

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer

assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

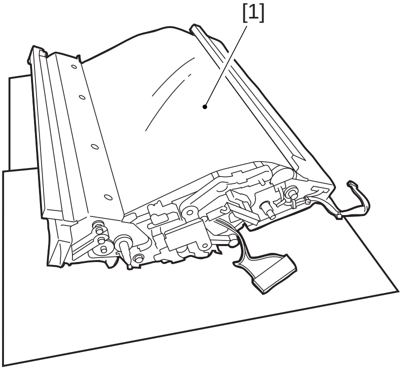
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-216

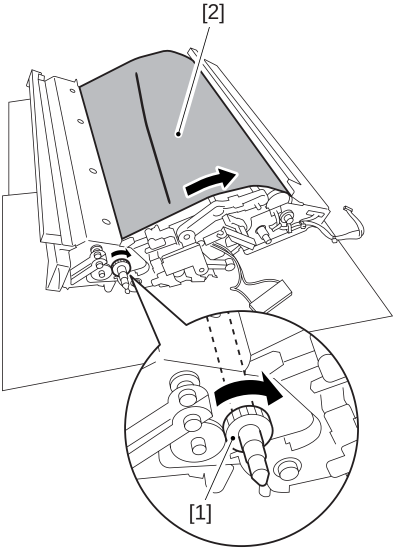
7.11.8.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



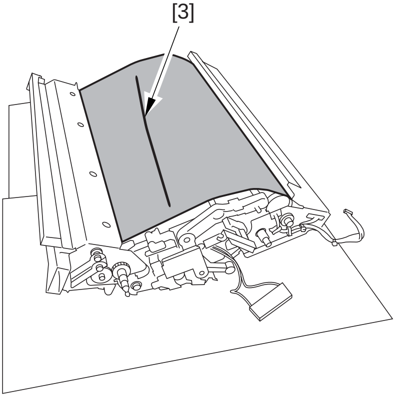
F-7-217

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



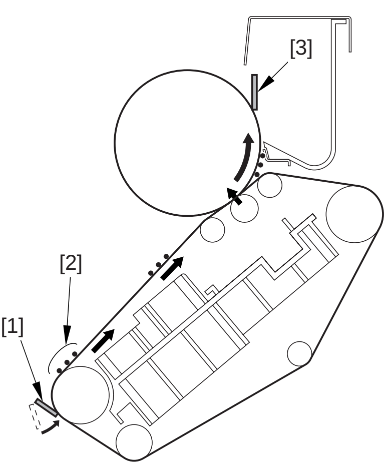
F-7-218

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-219

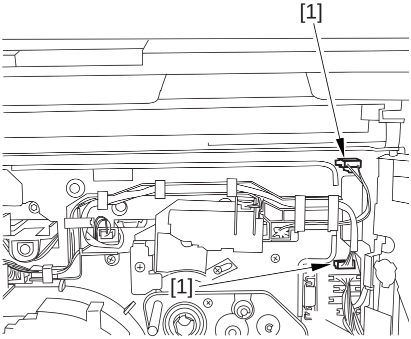
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-220

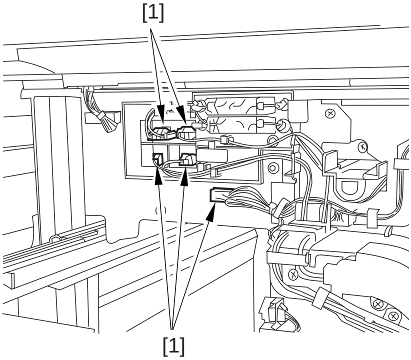
7.11.8.8 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



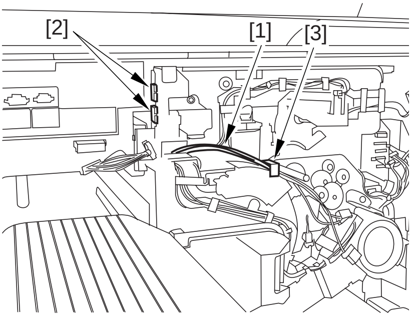
F-7-221

2) Disconnect the 5 connectors [1] found at the upper left.



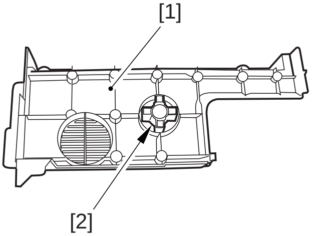
F-7-222

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-223

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

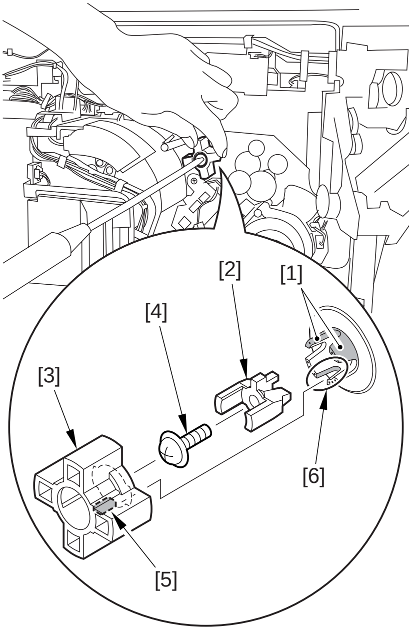


F-7-224

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

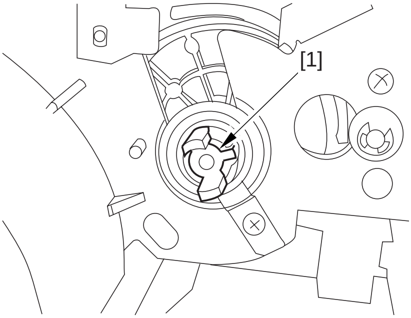
1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



F-7-225

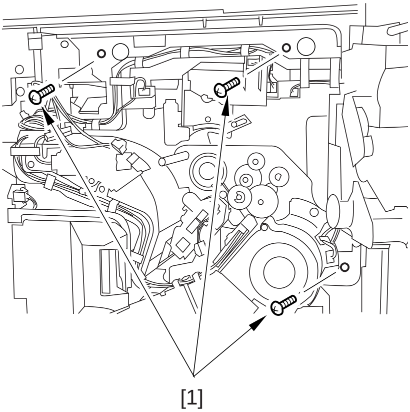
2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.
In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



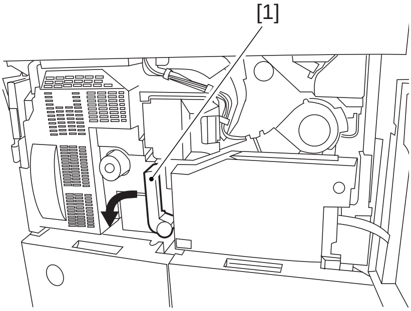
F-7-226

7) Remove the 3 binding screws (M4x8) [1].



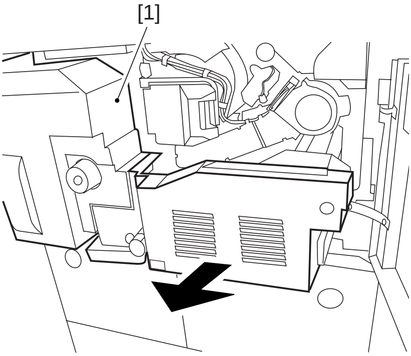
F-7-227

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



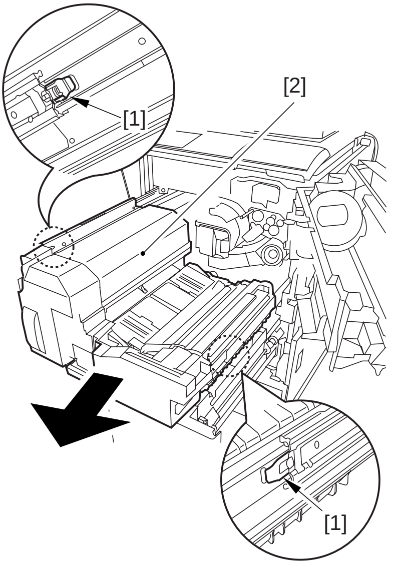
F-7-228

9) Slide out the fixing/feeding assembly [1] toward the front.



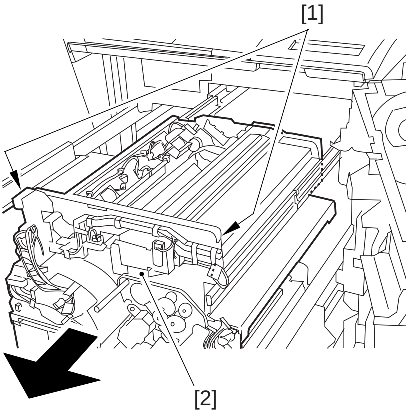
F-7-229

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-230

11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].

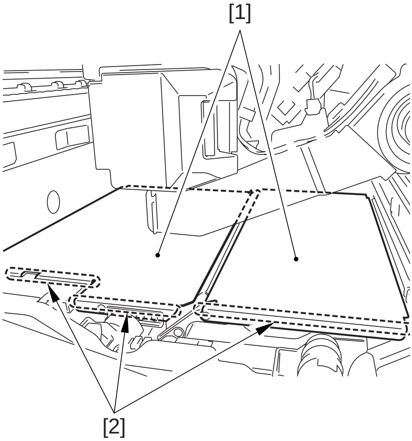


F-7-231

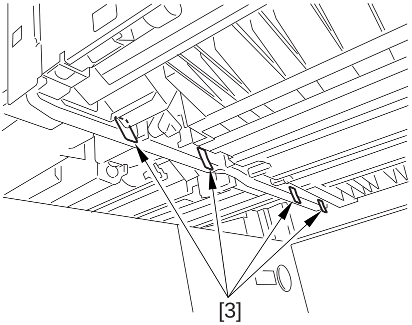
When you have slid out the process unit,

check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-232



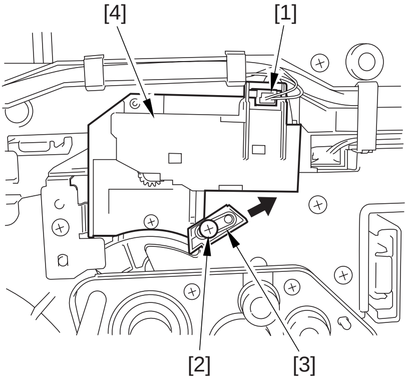
F-7-233

7.11.8.9 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

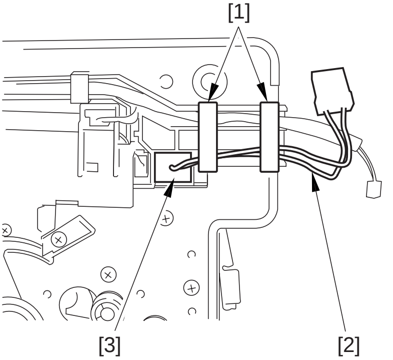
3) Detach the primary charging assembly [4] from the machine.



F-7-234

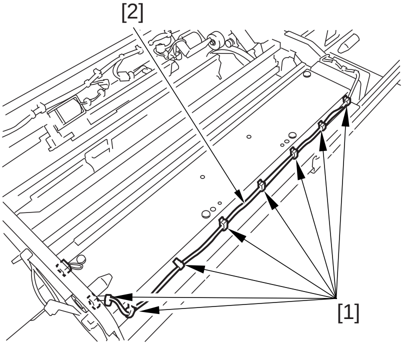
7.11.8.10 Removing the Photosensitive Drum Cleaning Unit

1) Open the 2 cable clamps [1], and lead the harness [2] through the opening [3] in the process unit.



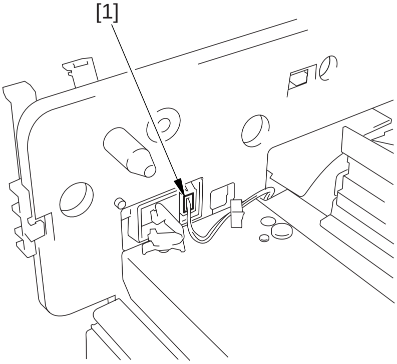
F-7-235

2) Open the 8 cable clamps [1], and move the harness [2] out of the way.



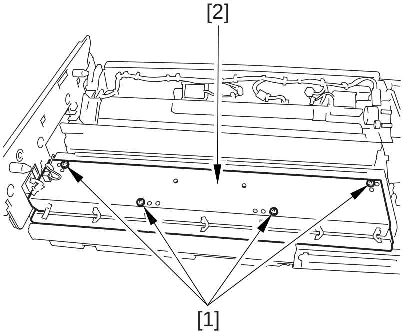
F-7-236

3) Disconnect the connector [1].



F-7-237

4) Remove the 4 screws [1], and detach the photosensitive drum cleaning unit [2].



F-7-238

7.11.8.11 Removing the Black Developing Unit

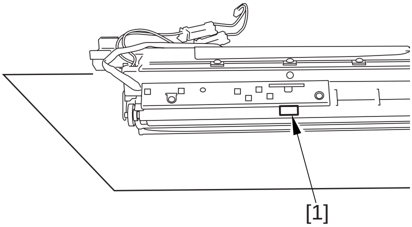
⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore,

not to damage the developing cylinder when you have detached the developing unit.

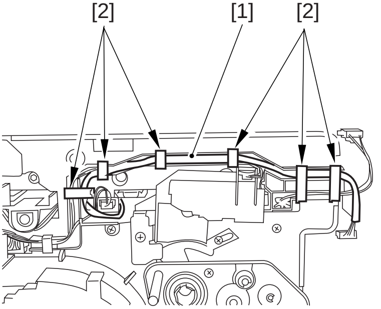
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



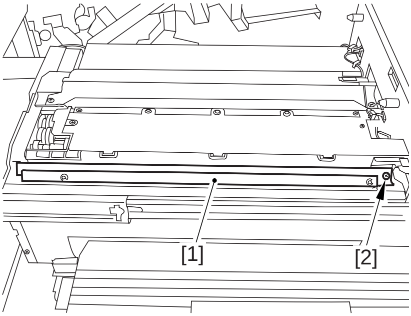
F-7-239

1) Open the harness guide used to fix the high-voltage cable [1] in place.



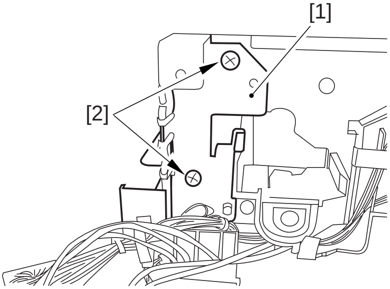
F-7-240

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



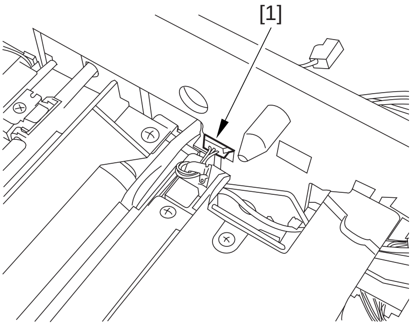
F-7-241

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



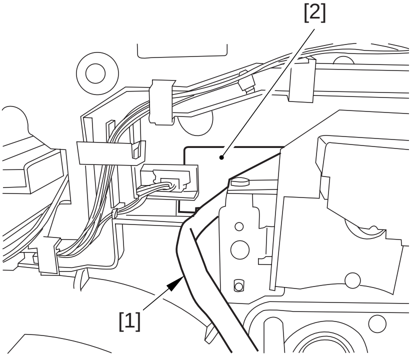
F-7-242

4) Disconnect the connector [1].



F-7-243

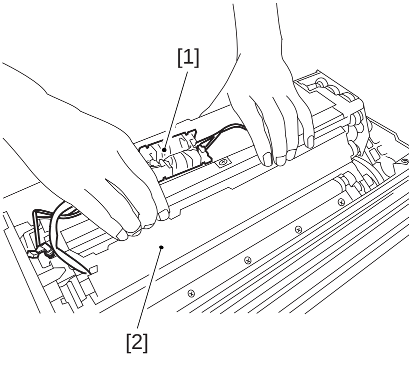
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-244

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

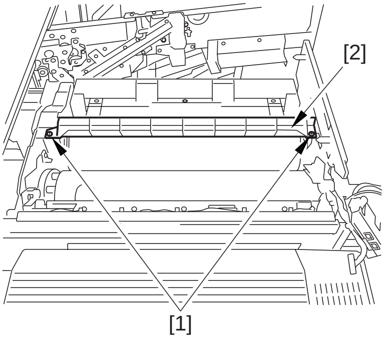
⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-245

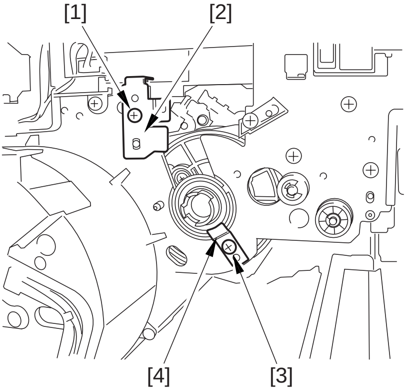
7.11.8.12 Removing the Photosensitive Drum

1) Remove the 2 screws [1], and detach the charging assembly rail [2].



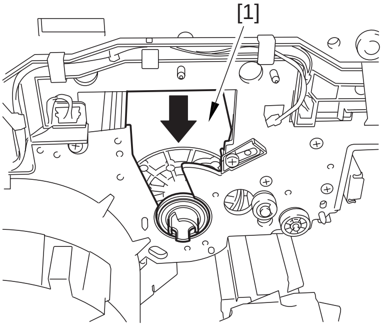
F-7-246

2) Remove the screw [1], and detach the charging assembly rail fixing plate [2].
3) Remove the screw [3], and detach the bearing stopper [4].



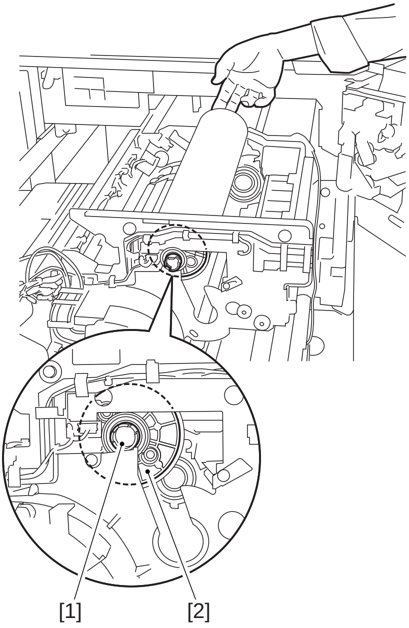
F-7-247

4) Pull the photosensitive drum [1] toward the front once, and then detach it.



F-7-248

⚠ At the font, hold the photosensitive drum shaft [1], and lift the drum; then, place it on the level area of the heat process unit front plate. Thereafter, hold the drum flange [2] from behind the front side plate.



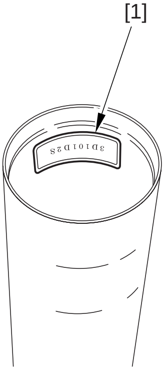
F-7-249

7.11.8.13 Replacing the Photosensitive Drum

If you have replaced the photosensitive drum, be sure to go through the following:

1) Remove the drum heater and the drum heater PCB; then, mount them to the new photosensitive drum.

2) Mount the photosensitive drum so that the lot number label [1] attached to its inner side is toward the front of the machine.



F-7-250

Memo:

There is a light difference in the inside diameter of the photosensitive drum between its front and its rear. (The front and rear drum flanges are designed in relation to the photosensitive drum.) If you mount the photosensitive drum in the wrong orientation, the gap between the developing cylinder and the photosensitive drum will be uneven, possibly causing uneven density.

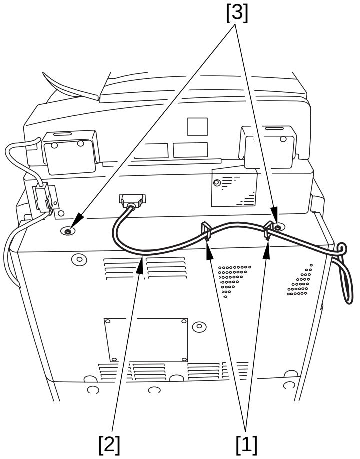
3) Replace the starter (3 types) of the color developing unit.

7.11.9 Drum Motor

7.11.9.1 Removing the Rear Cover (upper)

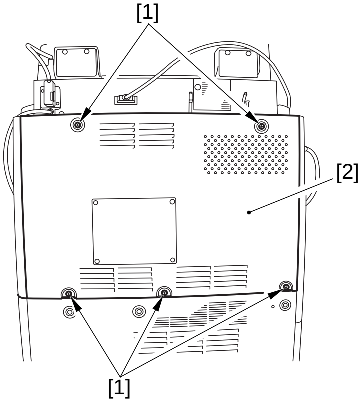
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-7-251

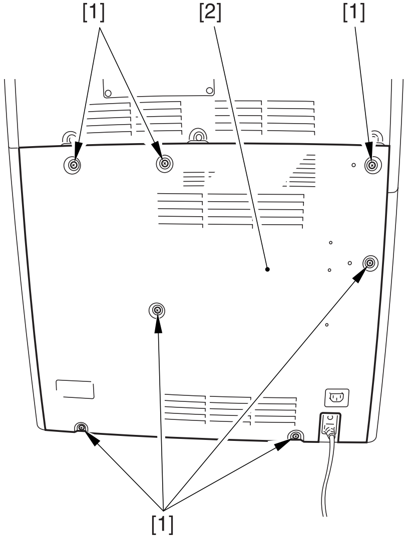
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-7-252

7.11.9.2 Removing the Rear Cover (lower)

1) Remove the 7 screws [1], and detach the rear cover (lower) [2].

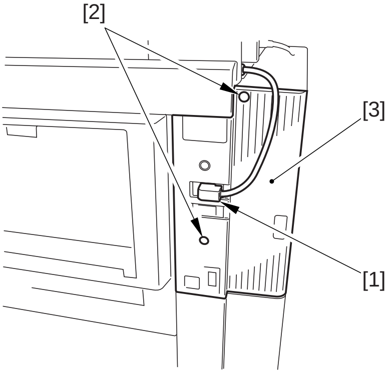


F-7-253

7.11.9.3 Removing the Right Cover (upper rear)

1) Detach the reader communications cable [1].

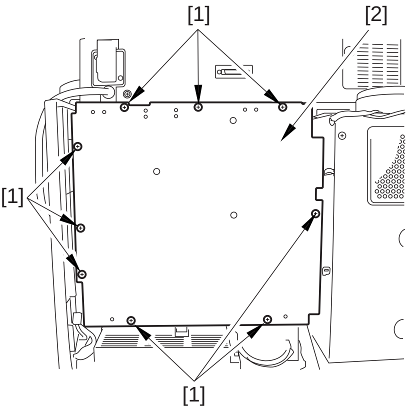
2) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



F-7-254

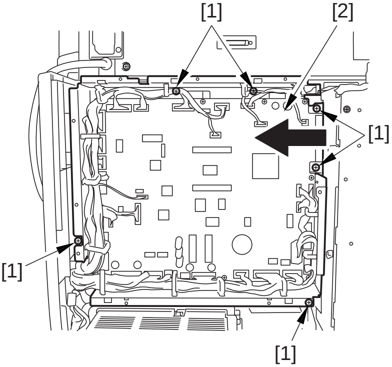
7.11.9.4 Sliding the DC Controller Box

1) Remove the 9 screws [1], and detach the DC controller cover [2].



F-7-255

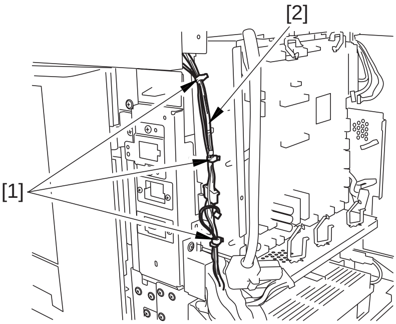
2) Remove the 6 screws [1], and slide the DC controller box [2] to the left.



F-7-256

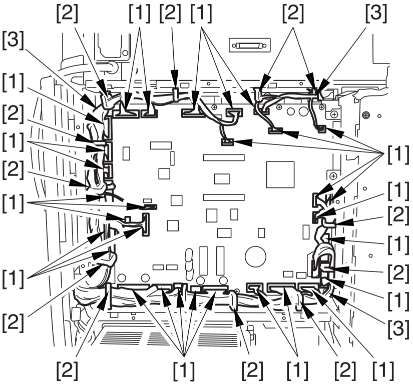
7.11.9.5 Removing the DC Controller Box

1) Open the 3 cable guides [1], and free the harness [2].



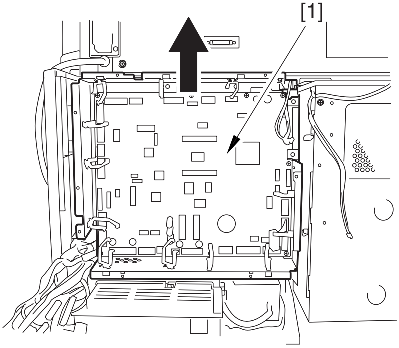
F-7-257

2) Disconnect the 33 connectors [1], and open that 13 cable guides [2]; then, free the harness [3].



F-7-258

3) Lift the DC controller box [1] to detach.

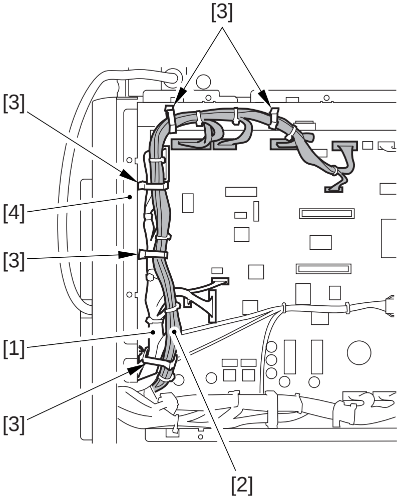


F-7-259

7.11.9.6 Points to Note When Mounting the DC Controller Box

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].
- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].

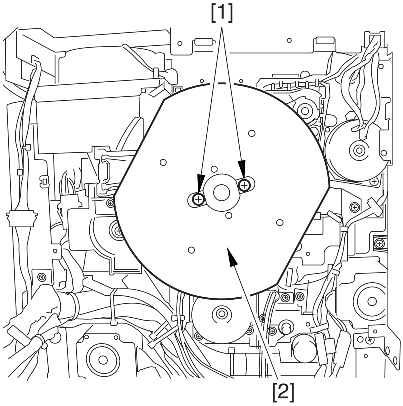


F-7-260

Supplementary Information:
If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

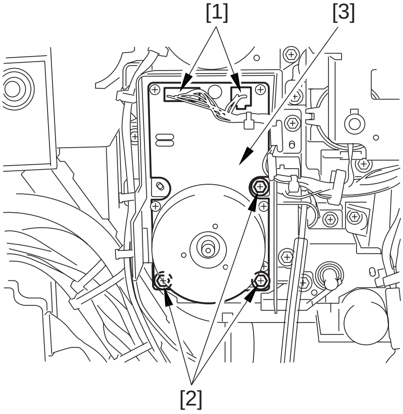
7.11.9.7 Removing the Drum Motor

1) Remove the 2 screws [1], and detach the fly wheel [2].



F-7-261

2) Disconnect the 2 connectors [1], and remove the 3 screws [2]; then, detach the drum motor [3].

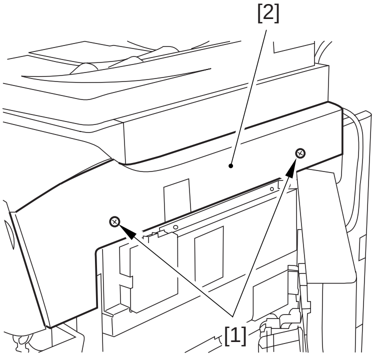


F-7-262

7.11.10 Drum Heater

7.11.10.1 Removing the Right Cover (upper)

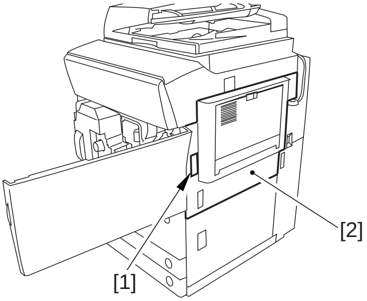
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-263

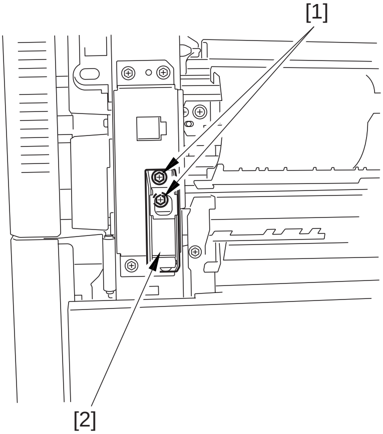
7.11.10.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-264

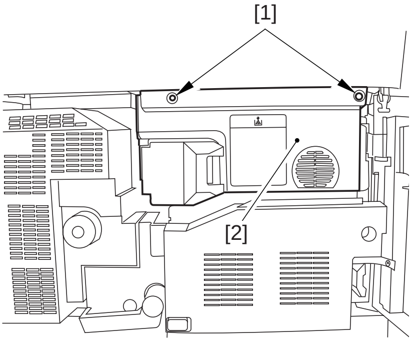
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-265

3) Slide out the fixing/feeding assembly

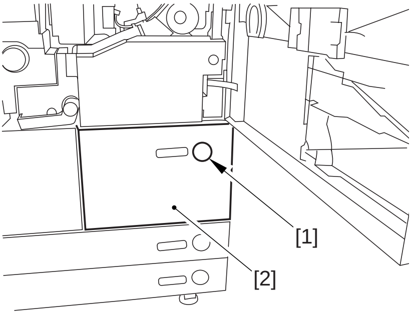
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-266

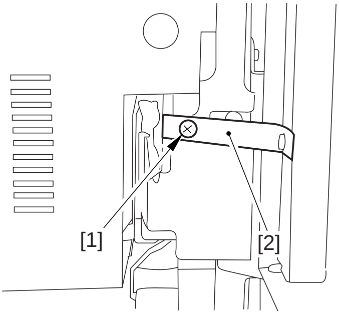
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



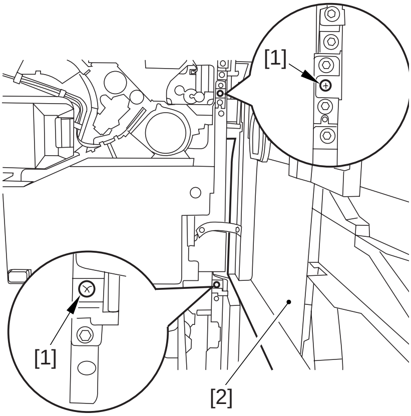
F-7-267

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-268

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

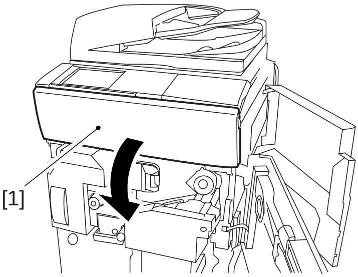


F-7-269

9) Close the right deck.

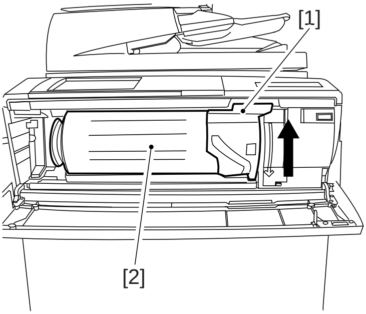
7.11.10.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



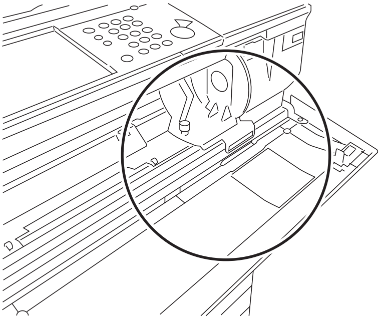
F-7-270

2) Shift down the lever [1], and detach the black toner bottle [2].



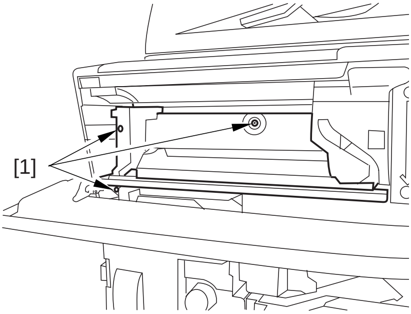
F-7-271

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



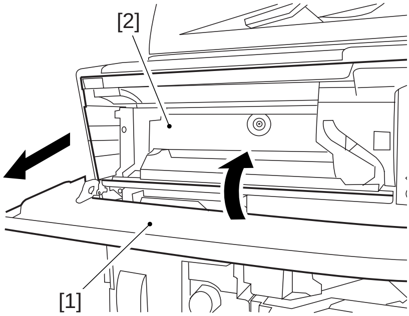
F-7-272

3) Remove the 3 screws [1].



F-7-273

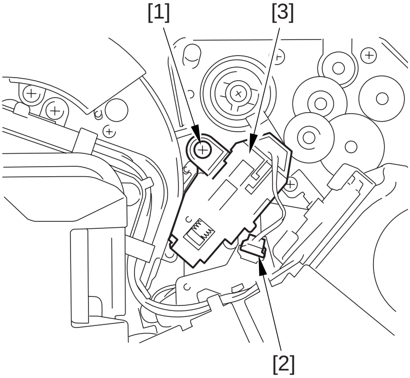
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-274

7.11.10.4 Removing the Pre-Transfer Charging Assembly

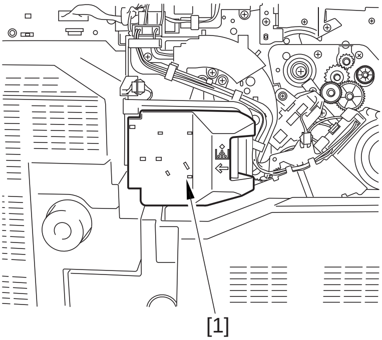
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-275

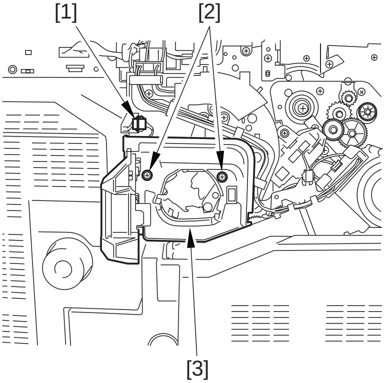
7.11.10.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-276

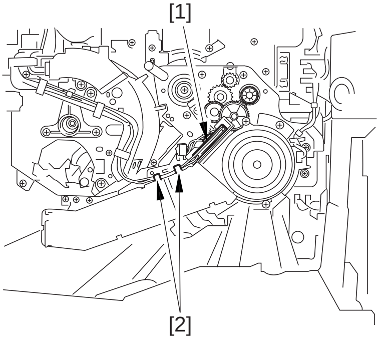
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-277

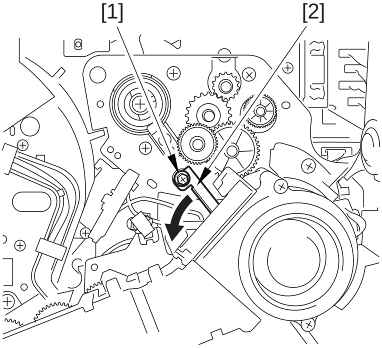
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



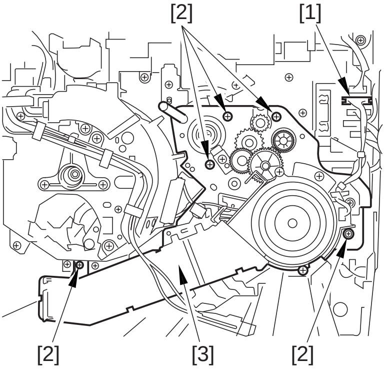
F-7-278

5) Remove the screw [1], and shift down the locking plate [2].



F-7-279

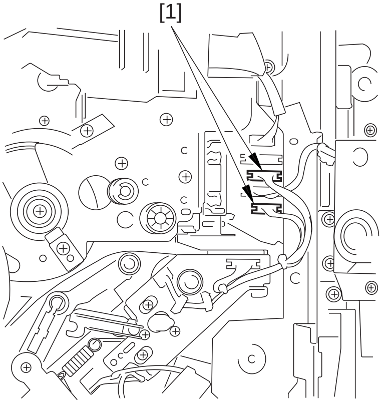
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-280

7.11.10.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

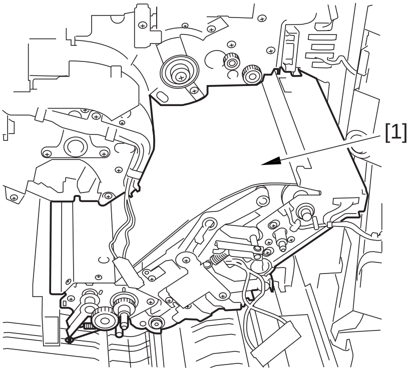


F-7-281

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

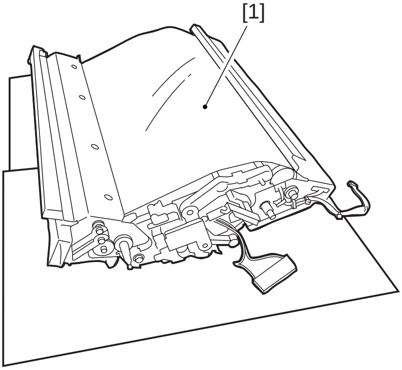
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-282

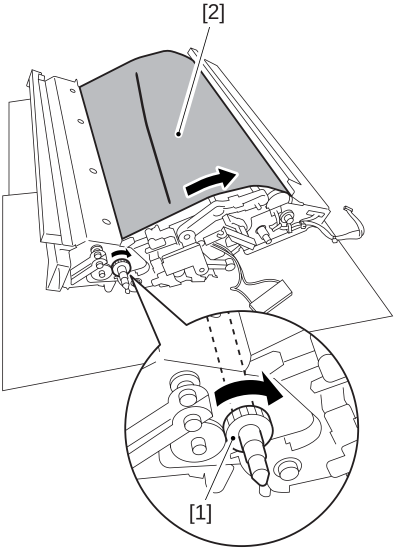
7.11.10.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



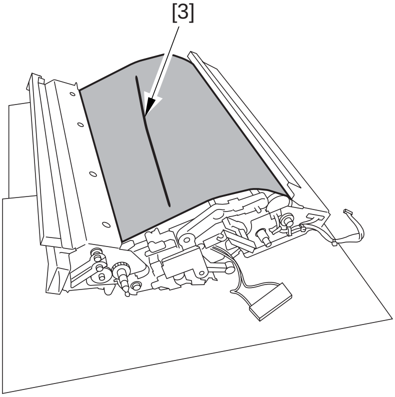
F-7-283

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



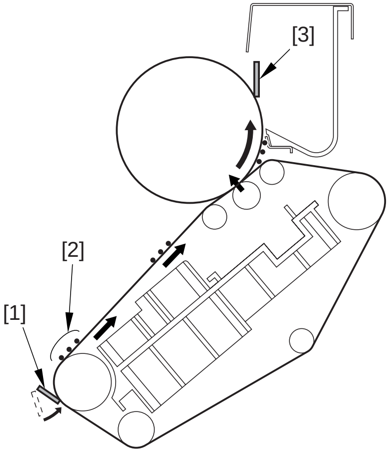
F-7-284

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-285

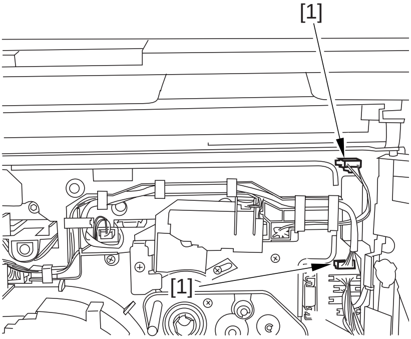
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-286

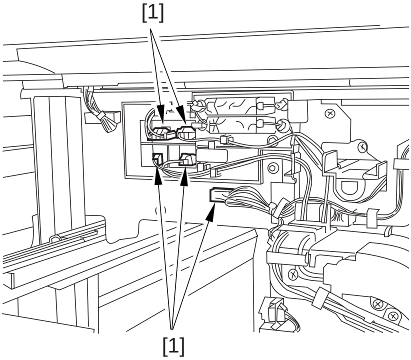
7.11.10.8 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



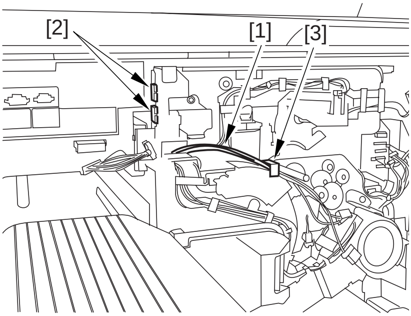
F-7-287

2) Disconnect the 5 connectors [1] found at the upper left.



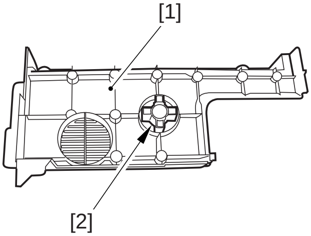
F-7-288

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-289

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

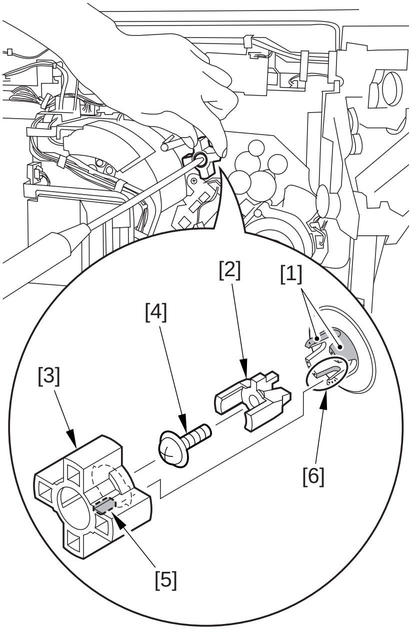


F-7-290

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



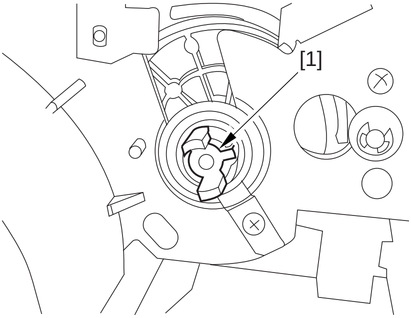
F-7-291

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

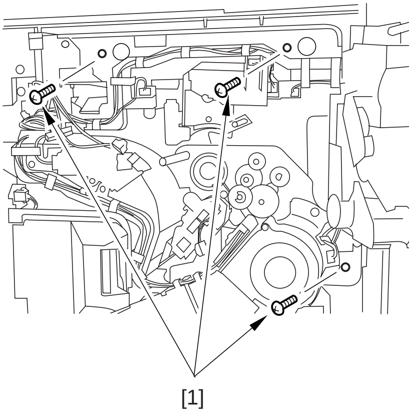
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



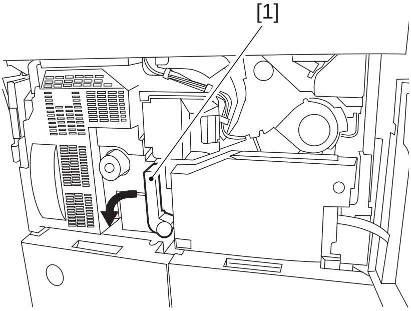
F-7-292

7) Remove the 3 binding screws (M4x8) [1].



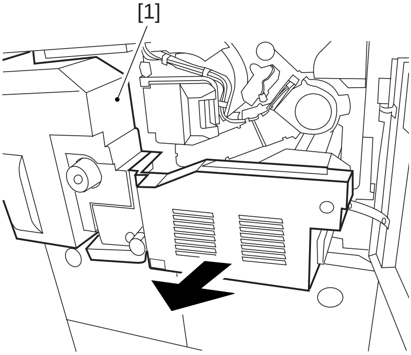
F-7-293

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



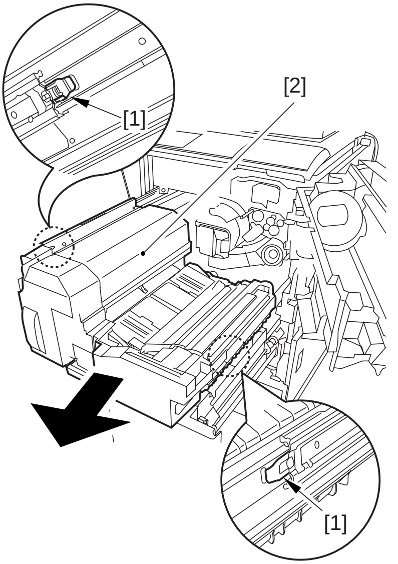
F-7-294

9) Slide out the fixing/feeding assembly [1] toward the front.



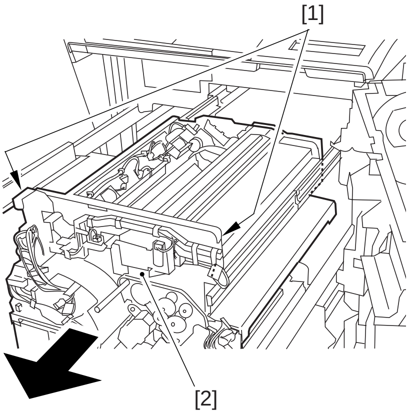
F-7-295

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-296

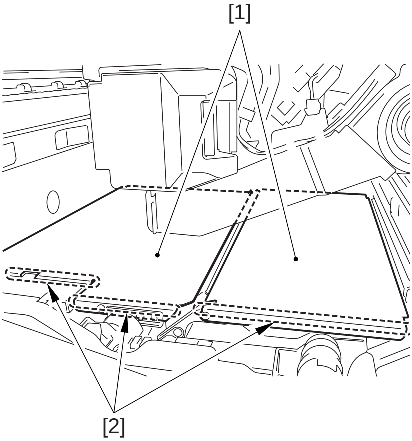
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



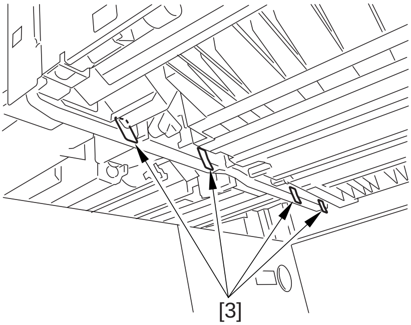
F-7-297

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-298



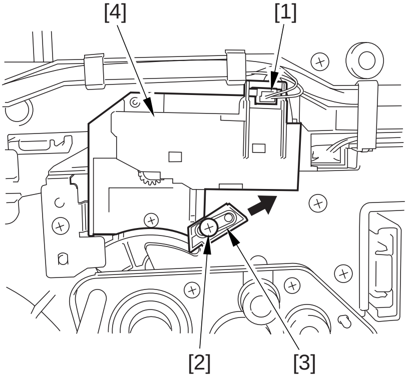
F-7-299

7.11.10.9 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

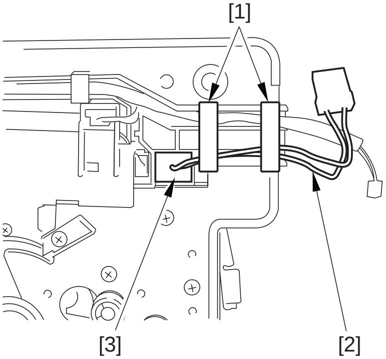
3) Detach the primary charging assembly [4] from the machine.



F-7-300

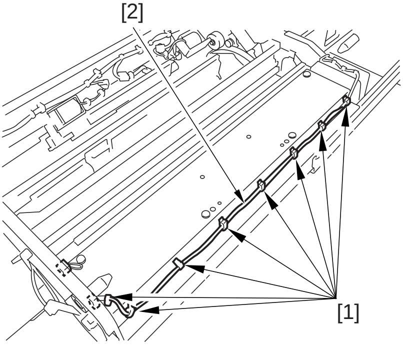
7.11.10.10 Removing the Photosensitive Drum Cleaning Unit

1) Open the 2 cable clamps [1], and lead the harness [2] through the opening [3] in the process unit.



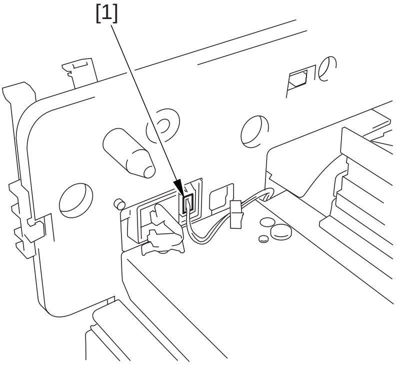
F-7-301

2) Open the 8 cable clamps [1], and move the harness [2] out of the way.



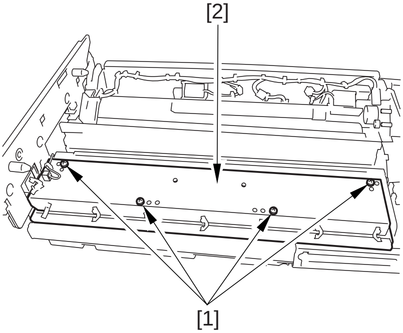
F-7-302

3) Disconnect the connector [1].



F-7-303

4) Remove the 4 screws [1], and detach the photosensitive drum cleaning unit [2].



F-7-304

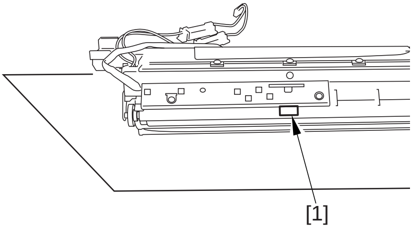
7.11.10.11 Removing the Black Developing Unit

⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore, not to damage the developing cylinder when you have detached the developing unit.

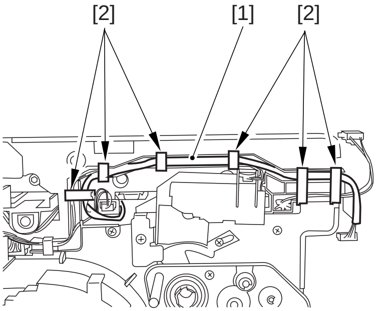
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



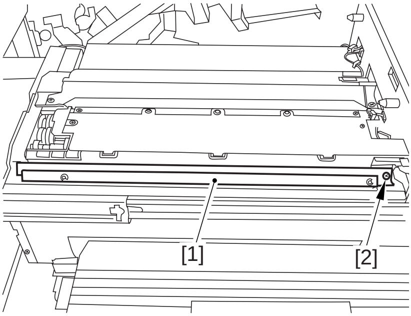
F-7-305

1) Open the harness guide used to fix the high-voltage cable [1] in place.



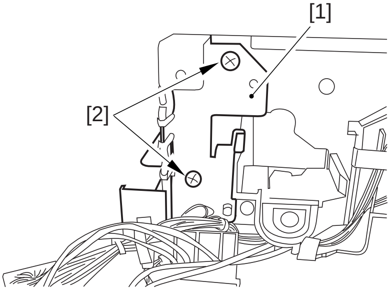
F-7-306

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



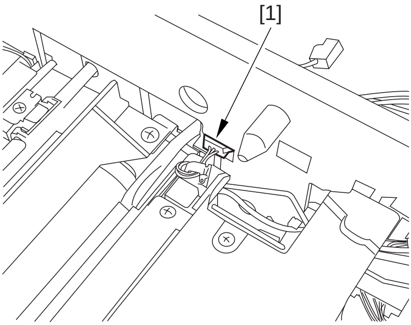
F-7-307

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



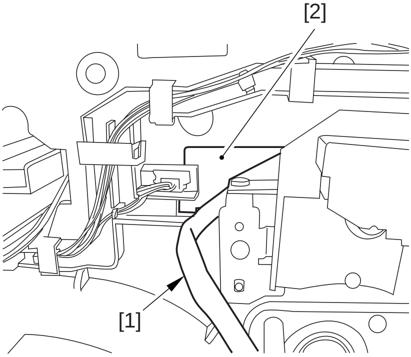
F-7-308

4) Disconnect the connector [1].



F-7-309

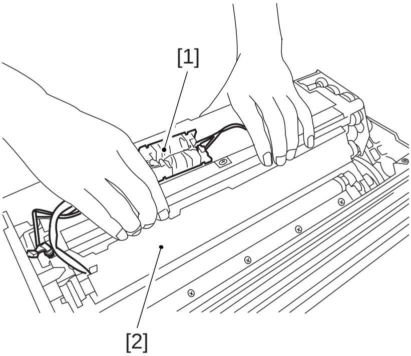
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-310

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

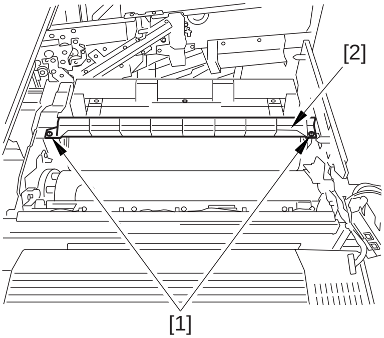
⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-311

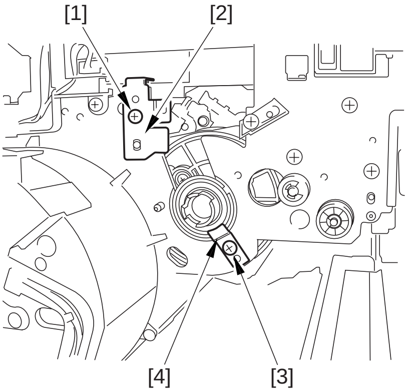
7.11.10.12 Removing the Photosensitive Drum

1) Remove the 2 screws [1], and detach the charging assembly rail [2].



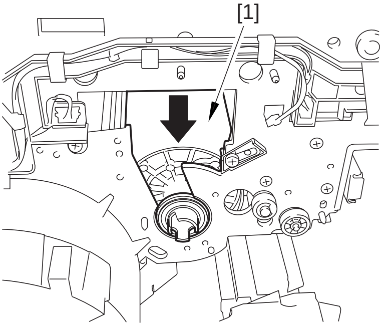
F-7-312

2) Remove the screw [1], and detach the charging assembly rail fixing plate [2].
3) Remove the screw [3], and detach the bearing stopper [4].



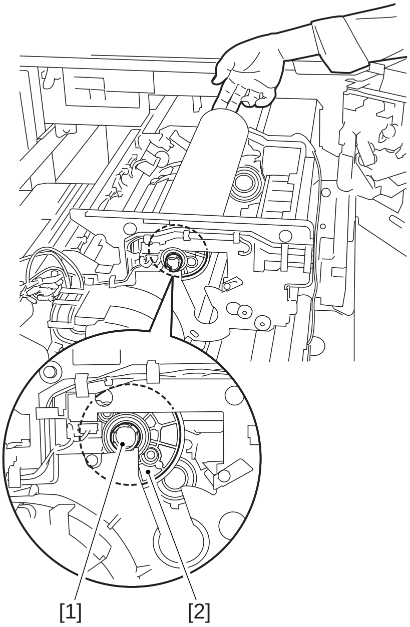
F-7-313

4) Pull the photosensitive drum [1] toward the front once, and then detach it.



F-7-314

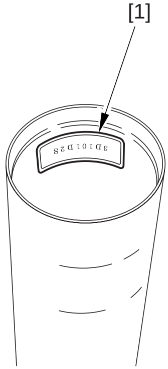
⚠ At the font, hold the photosensitive drum shaft [1], and lift the drum; then, place it on the level area of the heat process unit front plate. Thereafter, hold the drum flange [2] from behind the front side plate.



F-7-315

7.11.10.13 Points to Note When Mounting the Photosensitive Drum

Mount the photosensitive drum so that the lot number label [1] attached to its inner side is toward the front of the machine.



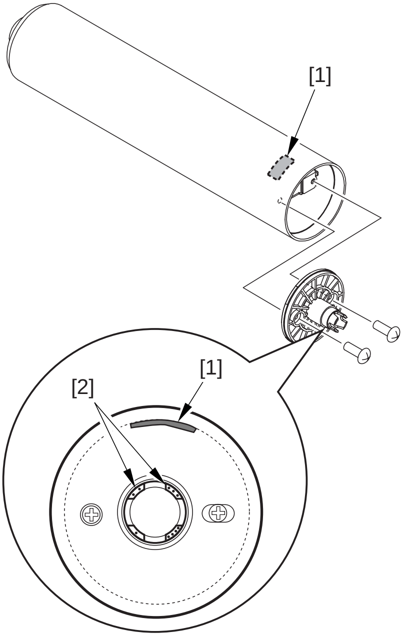
F-7-316

Memo:
There is a light difference in the inside diameter of the photosensitive drum between its front and its rear. (The front and rear drum flanges are designed in relation to the photosensitive drum.) If you mount the photosensitive drum in the wrong orientation, the gap between the developing cylinder and the photosensitive drum will be uneven, possibly causing uneven density.

7.11.10.14 Points to Note When Replacing the Drum Heater

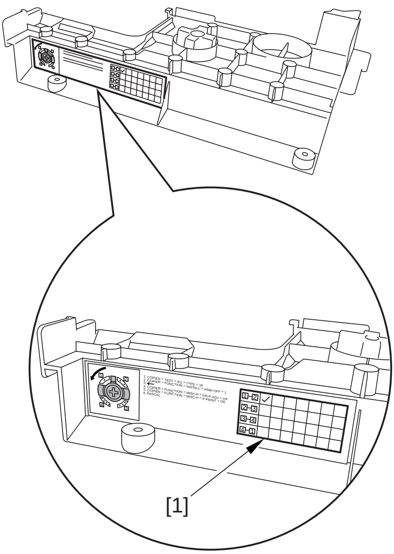
Drum memory can occur if the phase of the drum is changed, as when replacing the drum heater.
Take full care not to change the phase of the drum during the work by making sure of the following:

1. When detaching the drum flange, check the location of the marking [2] on the drum flange in relation to the lot No. label [1] found on the inner side of the drum. (In the case of the figure, the left of the marking is at ".." and the right is at "..." with the lot No. label facing upward.)
2. When attaching the drum flange, be sure to fix it in place with a screw where it was found in step 1.



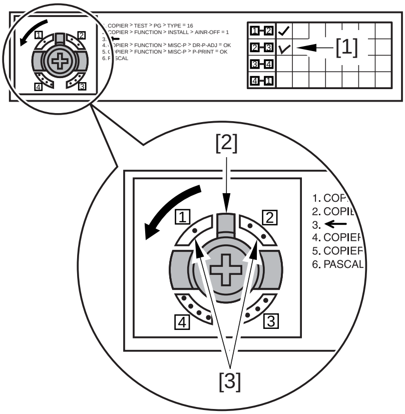
F-7-317

3. Check the drum phase label [1] attached behind the process unit cover.



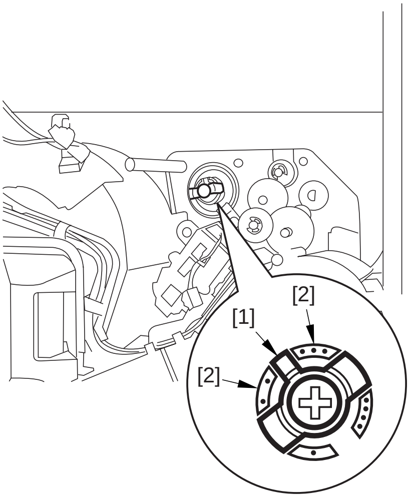
F-7-318

⚠See the following sample. The cell with a check mark [1] indicates the present drum phase location. In this case, the marking [3] is located in relation to the protrusion [2] of the drum fixing member with its left at ".." and right at "..." .


COPIER > TEST > PG > TYPE = 16
COPIER > FUNCTION > INSTALL > AINR-OFF = 1
4. COPIER > FUNCTION > MISC-P > DR-P-ADJ = OK
5. COPIER > FUNCTION > MISC-P > P-PRINT = OK
6. PASCAL
1-2 ✓
2-3 ✓
3-4
4-1
[1]
[2]
1
2
3
4
[3]
1. COP
2. COPIE
3. ←
4. COPIER
5. COPIER
6. PASCAL

F-7-319

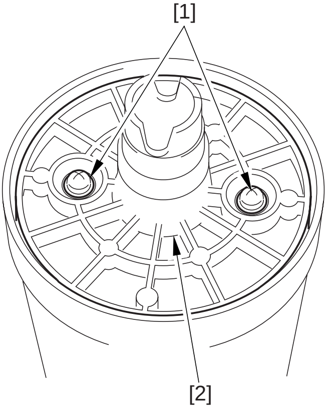
4. Be sure to fit the drum fixing member [1] to the drum flange [2] in correct relation to the phase location indicated on the drum phase label.



F-7-320

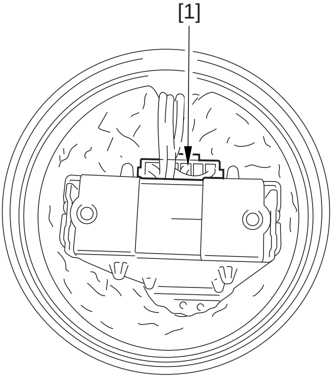
7.11.10.15 Removing the Drum Heater

1) Remove the 2 screws [1], and detach the flange found at the front [2].



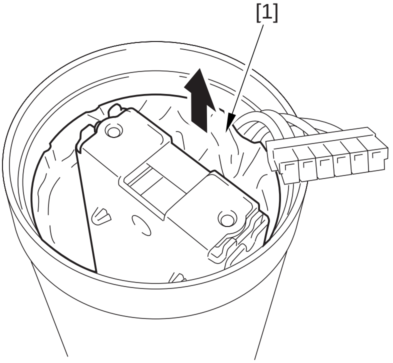
F-7-321

2) Disconnect the connector [1].



F-7-322

3) Lift the drum heater upright from the photosensitive drum; then, detach the drum heater.

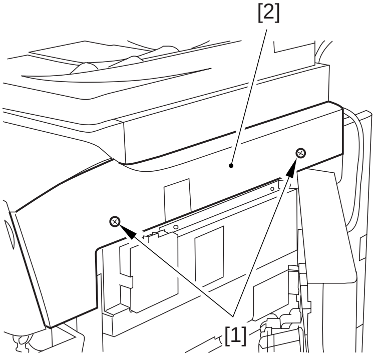


F-7-323

7.11.11 Drum Heater PCB

7.11.11.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

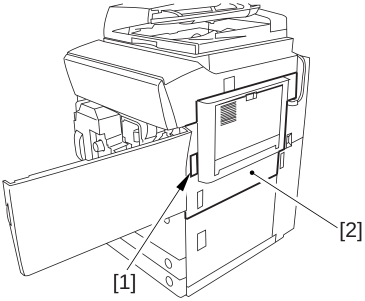


F-7-324

7.11.11.2 Releasing the Front Cover

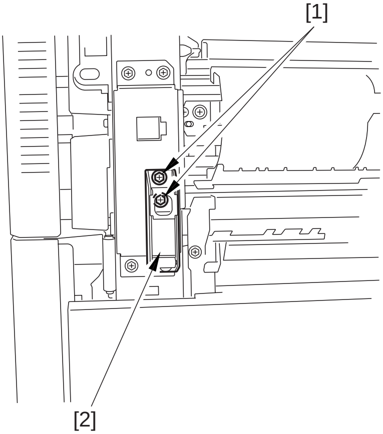
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-325

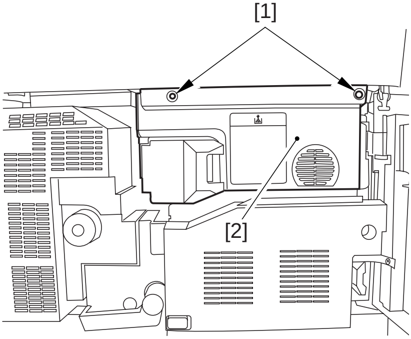
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-326

3) Slide out the fixing/feeding assembly

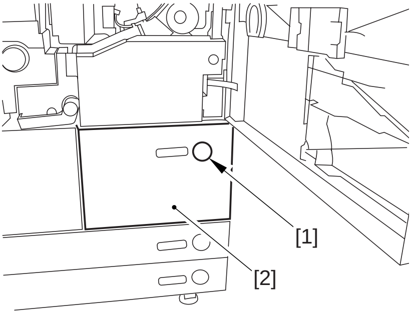
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-327

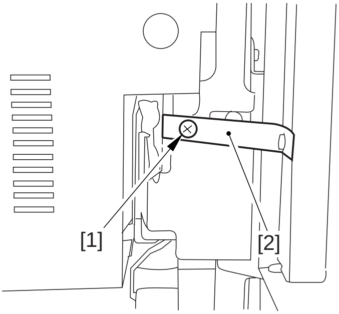
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



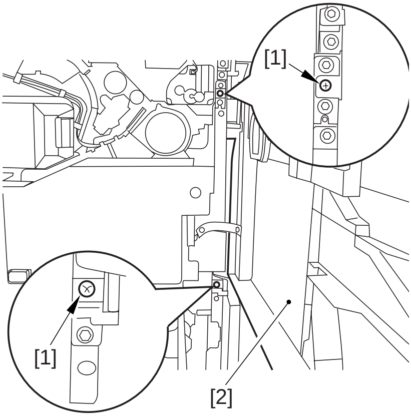
F-7-328

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-329

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

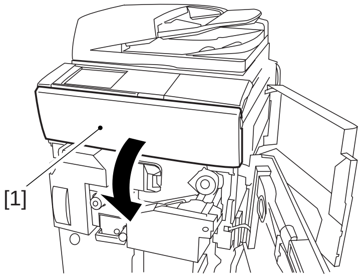


F-7-330

9) Close the right deck.

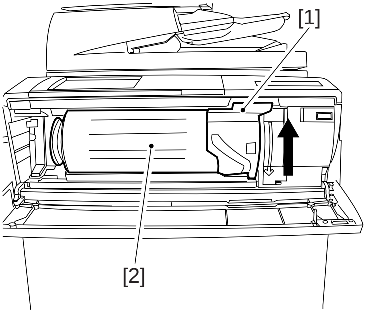
7.11.11.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



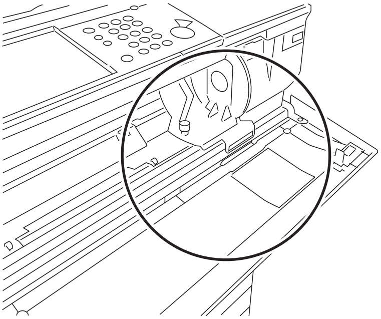
F-7-331

2) Shift down the lever [1], and detach the black toner bottle [2].



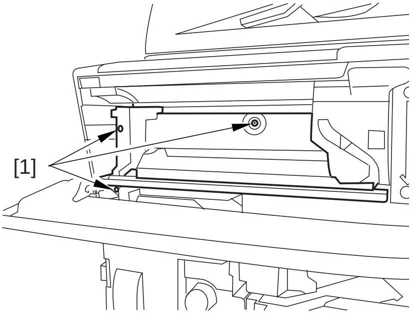
F-7-332

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



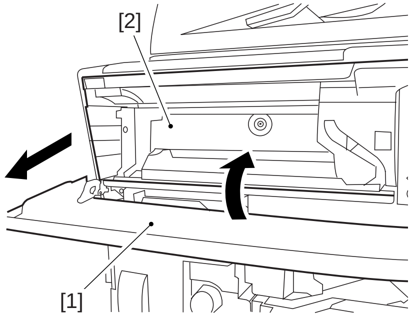
F-7-333

3) Remove the 3 screws [1].



F-7-334

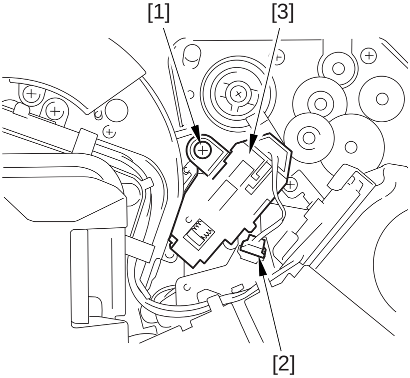
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-335

7.11.11.4 Removing the Pre-Transfer Charging Assembly

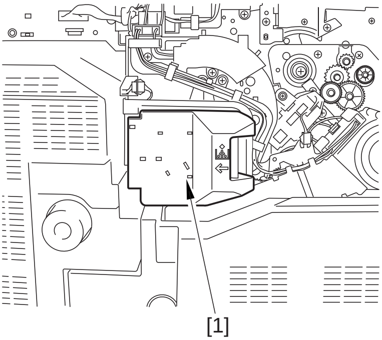
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-336

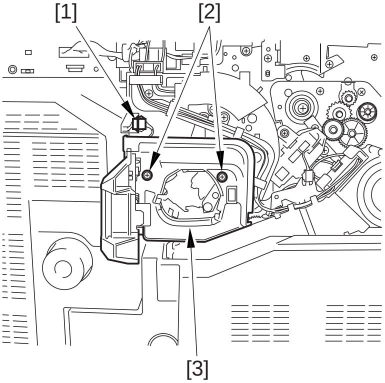
7.11.11.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-337

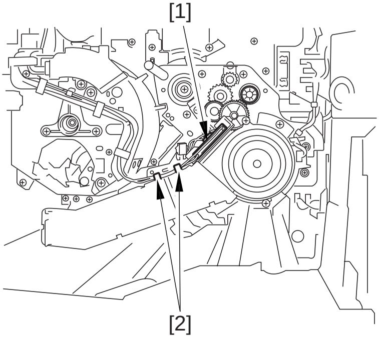
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-338

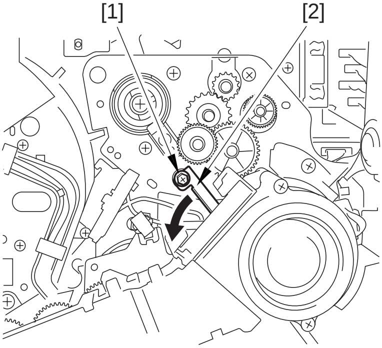
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



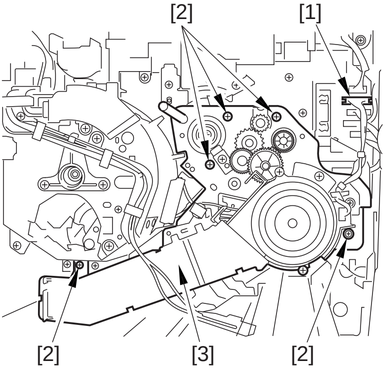
F-7-339

5) Remove the screw [1], and shift down the locking plate [2].



F-7-340

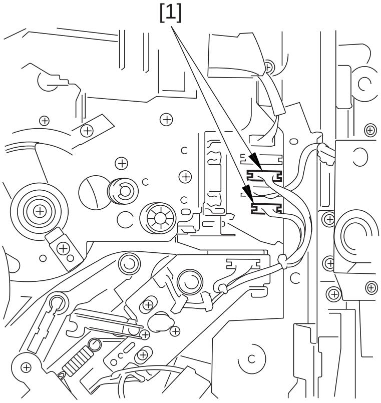
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-341

7.11.11.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

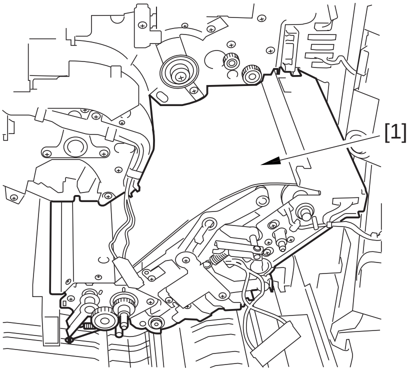


F-7-342

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

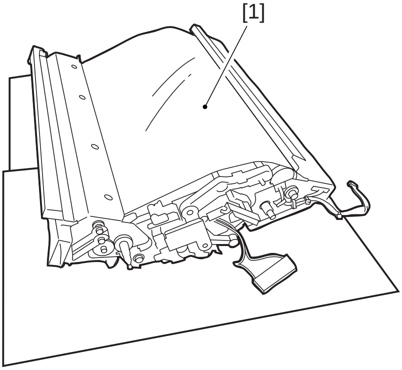
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-343

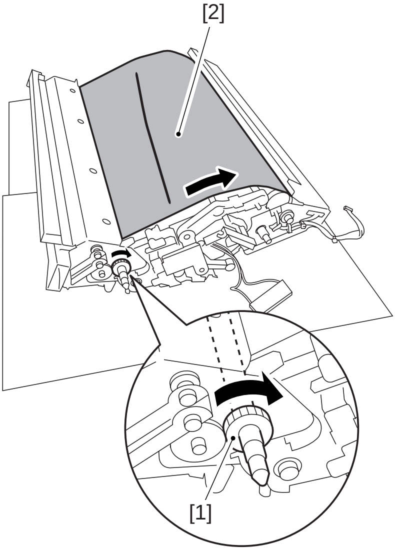
7.11.11.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



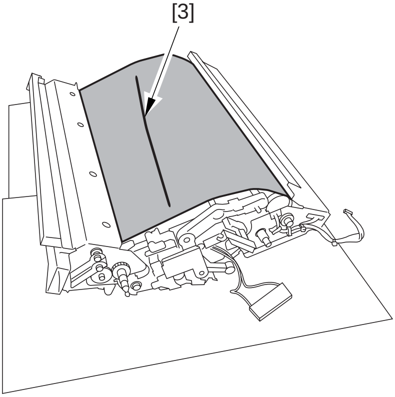
F-7-344

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



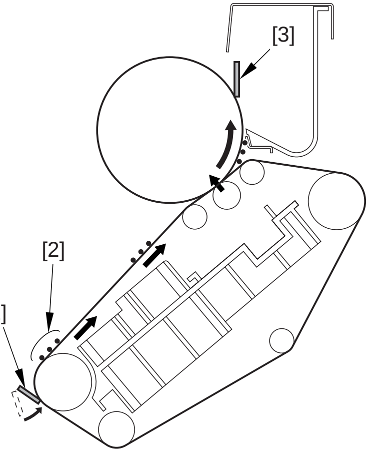
F-7-345

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-346

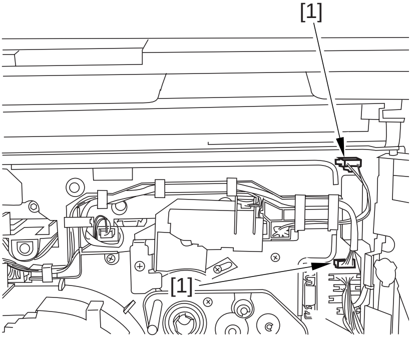
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-347

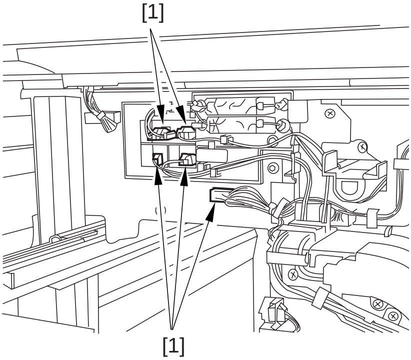
7.11.11.8 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



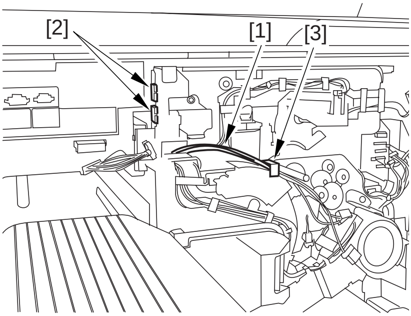
F-7-348

2) Disconnect the 5 connectors [1] found at the upper left.



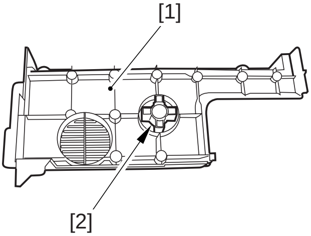
F-7-349

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-350

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

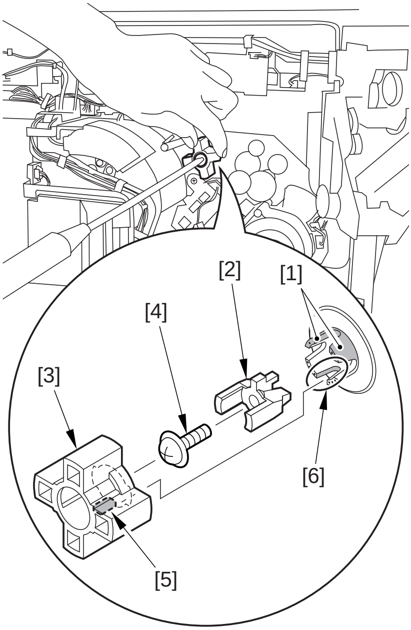


F-7-351

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



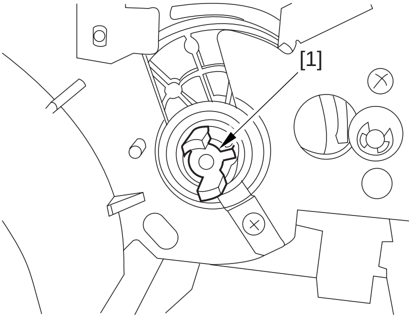
F-7-352

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

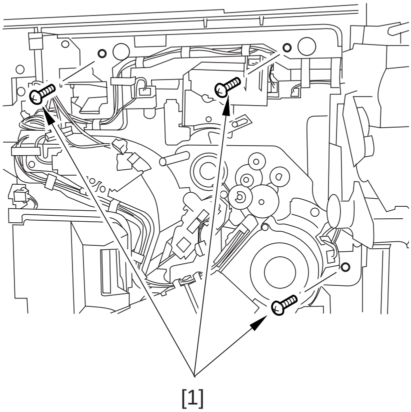
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



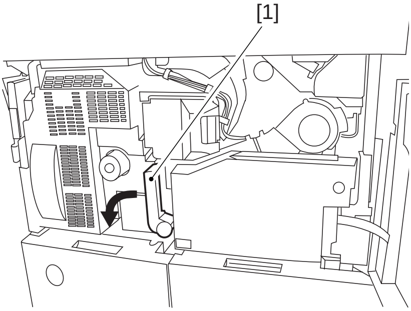
F-7-353

7) Remove the 3 binding screws (M4x8) [1].



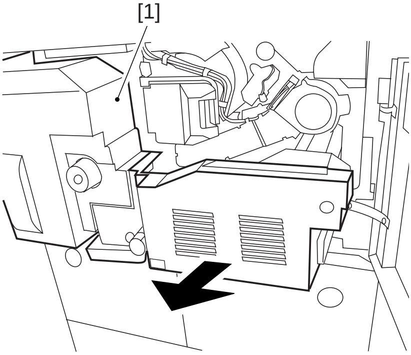
F-7-354

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



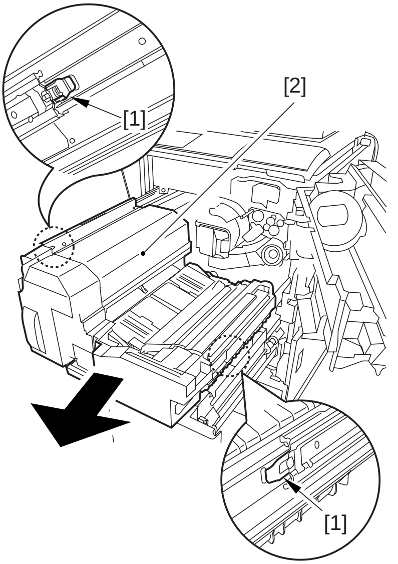
F-7-355

9) Slide out the fixing/feeding assembly [1] toward the front.



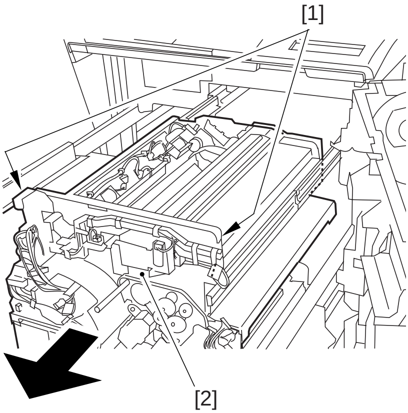
F-7-356

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-357

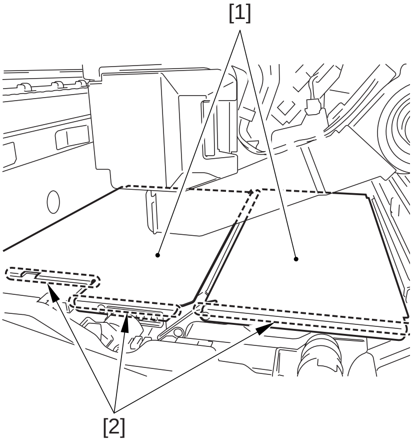
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



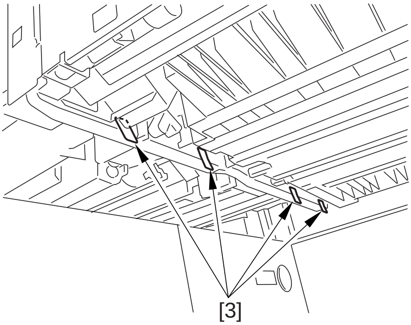
F-7-358

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-359



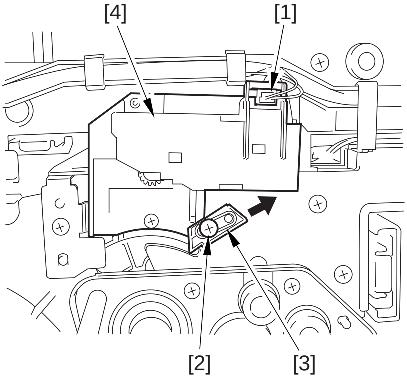
F-7-360

7.11.11.9 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

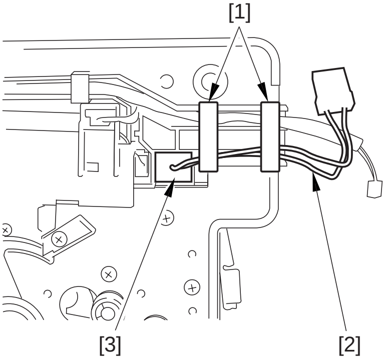
3) Detach the primary charging assembly [4] from the machine.



F-7-361

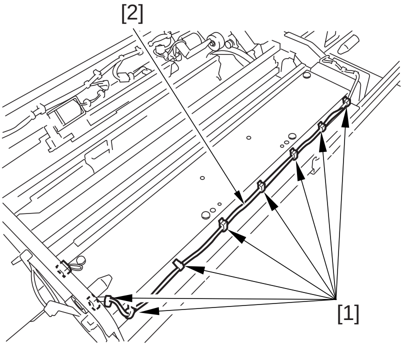
7.11.11.10 Removing the Photosensitive Drum Cleaning Unit

1) Open the 2 cable clamps [1], and lead the harness [2] through the opening [3] in the process unit.



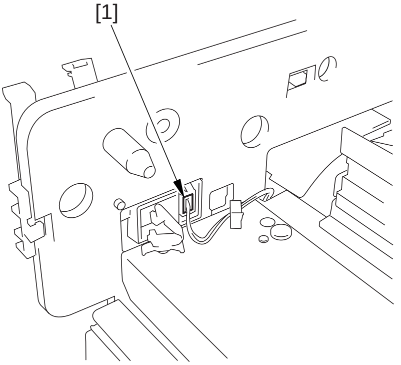
F-7-362

2) Open the 8 cable clamps [1], and move the harness [2] out of the way.



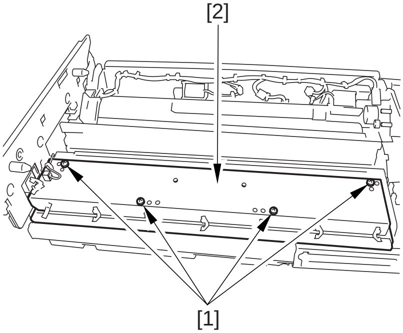
F-7-363

3) Disconnect the connector [1].



F-7-364

4) Remove the 4 screws [1], and detach the photosensitive drum cleaning unit [2].



F-7-365

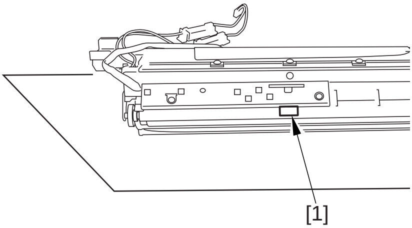
7.11.11.11 Removing the Black Developing Unit

⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore, not to damage the developing cylinder when you have detached the developing unit.

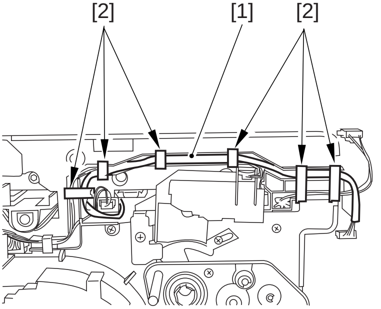
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



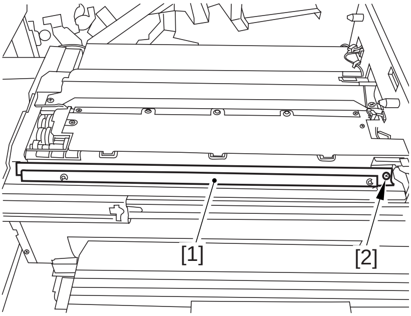
F-7-366

1) Open the harness guide used to fix the high-voltage cable [1] in place.



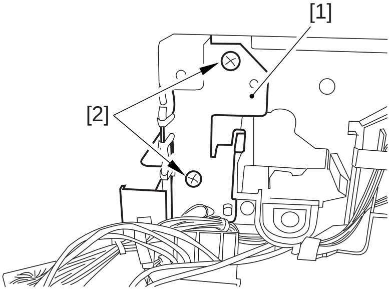
F-7-367

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



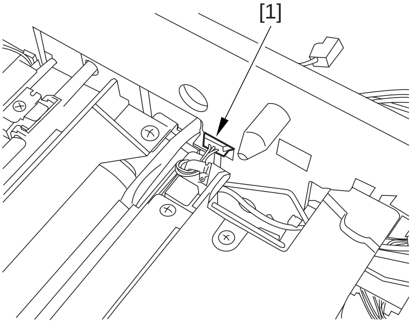
F-7-368

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



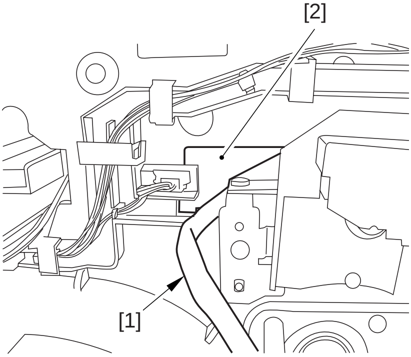
F-7-369

4) Disconnect the connector [1].



F-7-370

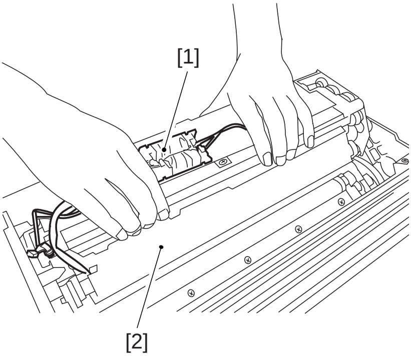
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-371

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

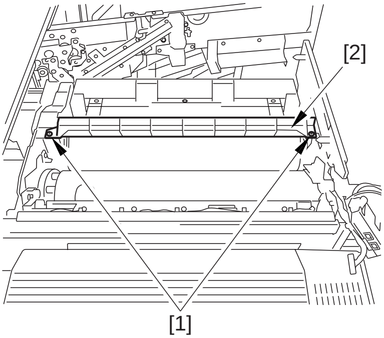
⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-372

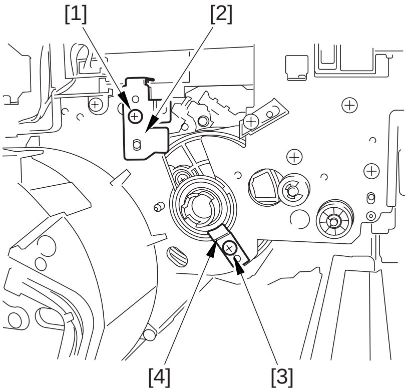
7.11.11.12 Removing the Photosensitive Drum

1) Remove the 2 screws [1], and detach the charging assembly rail [2].



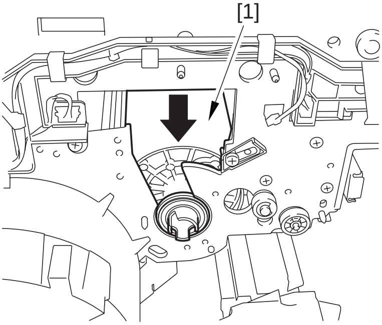
F-7-373

2) Remove the screw [1], and detach the charging assembly rail fixing plate [2].
3) Remove the screw [3], and detach the bearing stopper [4].



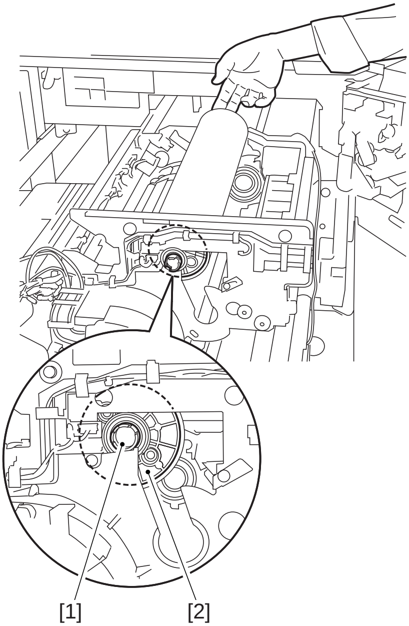
F-7-374

4) Pull the photosensitive drum [1] toward the front once, and then detach it.



F-7-375

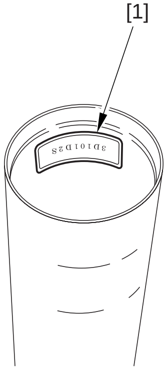
⚠ At the font, hold the photosensitive drum shaft [1], and lift the drum; then, place it on the level area of the heat process unit front plate. Thereafter, hold the drum flange [2] from behind the front side plate.



F-7-376

7.11.11.13 Points to Note When Mounting the Photosensitive Drum

Mount the photosensitive drum so that the lot number label [1] attached to its inner side is toward the front of the machine.

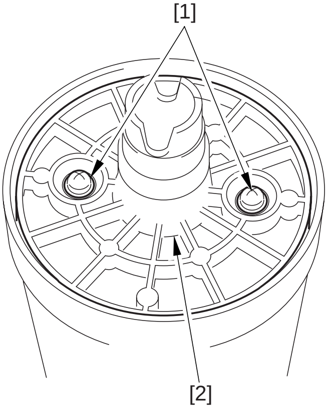


F-7-377

Memo:
There is a light difference in the inside diameter of the photosensitive drum between its front and its rear. (The front and rear drum flanges are designed in relation to the photosensitive drum.) If you mount the photosensitive drum in the wrong orientation, the gap between the developing cylinder and the photosensitive drum will be uneven, possibly causing uneven density.

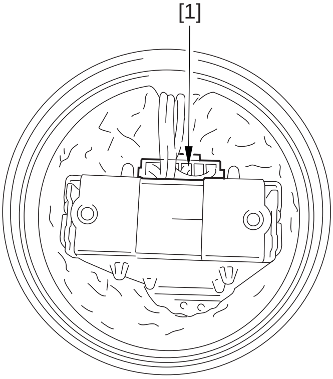
7.11.11.14 Removing the Drum Heater

1) Remove the 2 screws [1], and detach the flange found at the front [2].



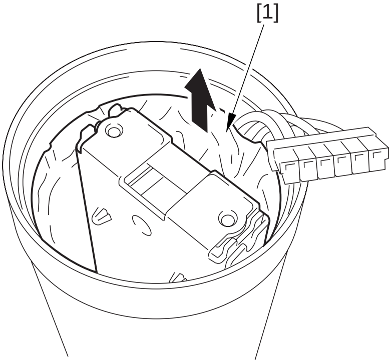
F-7-378

2) Disconnect the connector [1].



F-7-379

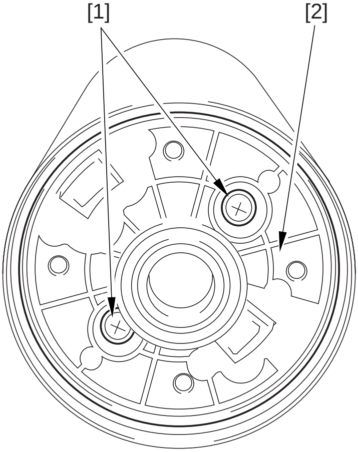
3) Lift the drum heater upright from the photosensitive drum; then, detach the drum heater.



F-7-380

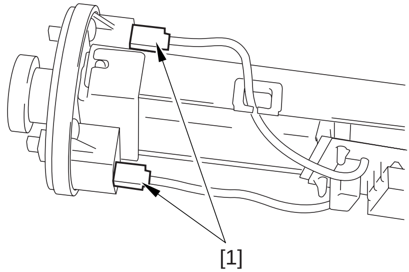
7.11.11.15 Removing the Drum Heater PCB

1) Remove the 2 screws [1], and detach the drum heater PCB together with the flange.



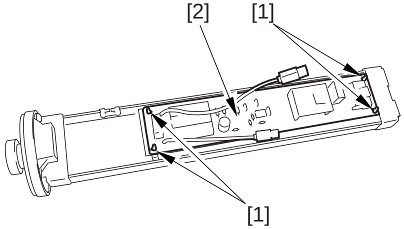
F-7-381

2) Disconnect the 2 connectors [1].



F-7-382

3) Remove the 4 edge saddles [1], and detach the drum heater PCB [2].



F-7-383

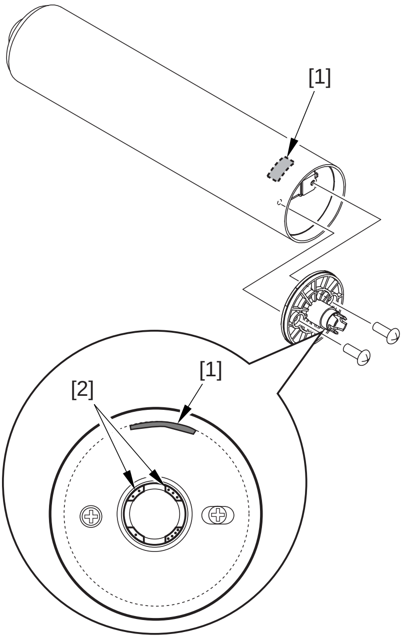
7.11.11.16 Points to Note When Replacing the Drum Heater PCB

Drum memory can occur if the phase of the drum is changed, as when replacing the drum heater PCB. Take full care not to change the phase of the drum during the work by making sure of the following:

1. When detaching the drum flange, check the location of the marking [2] on the drum flange in relation to the lot No. label [1]

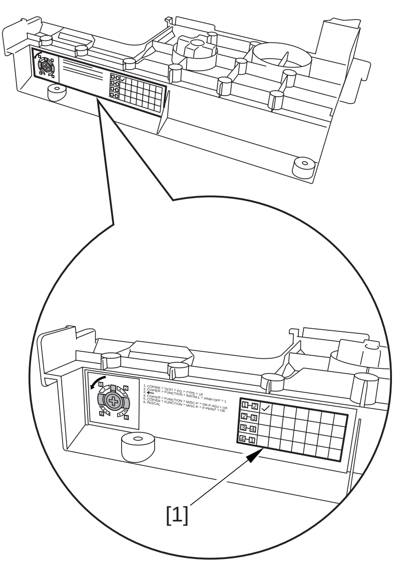
found on the inner side of the drum. (In the case of the figure, the left of the marking is at ".." and the right is at "..." with the lot No. label facing upward.)

2. When attaching the drum flange, be sure to fix it in place with a screw where it was found in step 1.



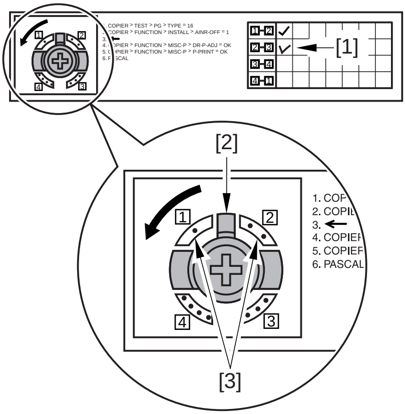
F-7-384

3. Check the drum phase label [1] attached behind the process unit cover.


1. COPIER > TEST > PG > TYPE = 16
2. COPIER > FUNCTION > INSTALL > AINR-OFF = 1
3. ←
4. COPIER > FUNCTION > MISC-P > DR-P-ADJ = OK
5. COPIER > FUNCTION > MISC-P > P-PRINT = OK
6. PASCAL
1
2
3
4
1-2 ✓
2-3
3-4
4-1
[1]

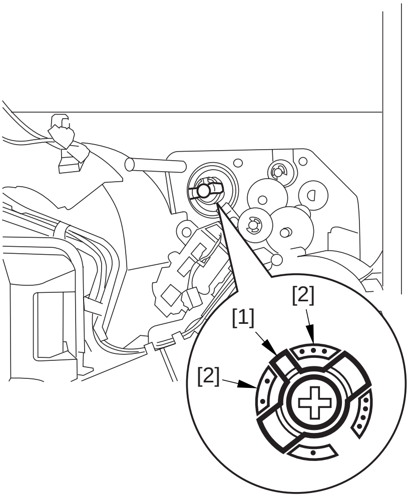
F-7-385

⚠See the following sample. The cell with a check mark [1] indicates the present drum phase location. In this case, the marking [3] is located in relation to the protrusion [2] of the drum fixing member with its left at ".." and right at "..." .


COPIER > TEST > PG > TYPE = 16
COPIER > FUNCTION > INSTALL > AINR-OFF = 1
3.
4. OPIER > FUNCTION > MISC-P > DR-P-ADJ = OK
5. OPIER > FUNCTION > MISC-P > P-PRINT = OK
6. SCAL
1-2
2-3
3-4
4-1
[1]
[2]
1
2
3
4
1. COP
2. COPIE
3.
4. COPIER
5. COPIER
6. PASCAL
[3]

F-7-386

4. Be sure to fit the drum fixing member [1] to the drum flange [2] in correct relation to the phase location indicated on the drum phase label.

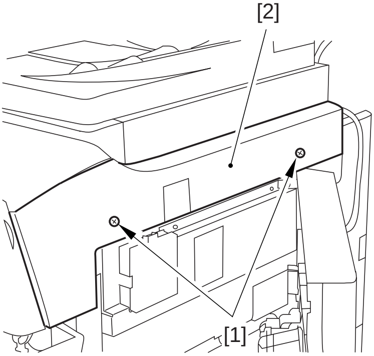


F-7-387

7.11.12 Photosensitive Drum Cleaning Blade

7.11.12.1 Removing the Right Cover (upper)

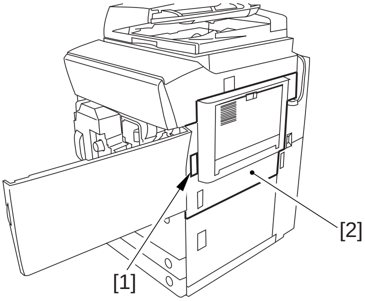
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-388

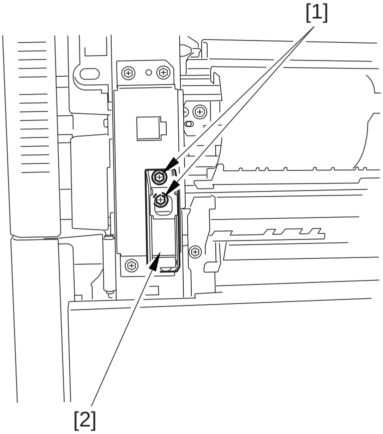
7.11.12.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-389

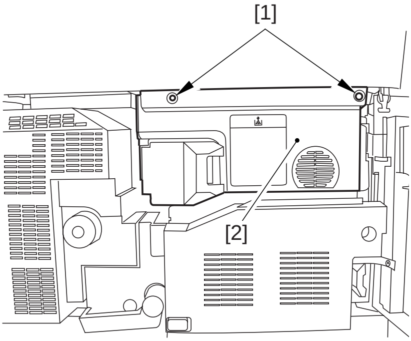
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-390

3) Slide out the fixing/feeding assembly

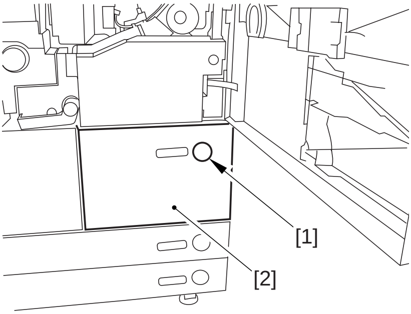
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-391

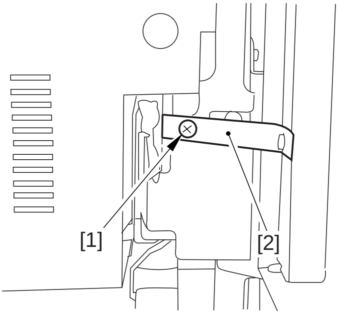
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



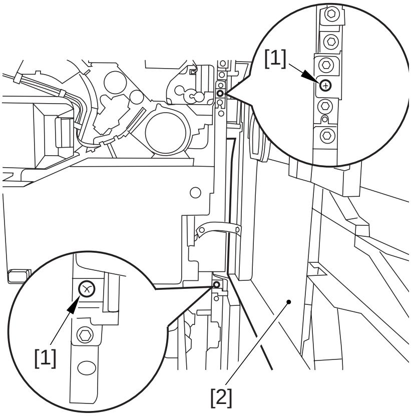
F-7-392

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-393

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

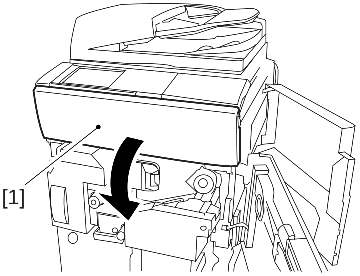


F-7-394

9) Close the right deck.

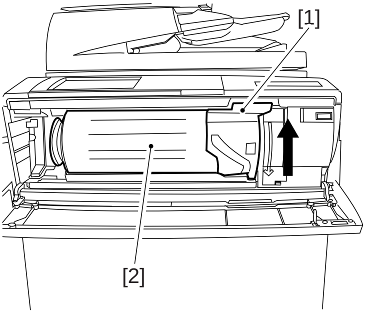
7.11.12.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



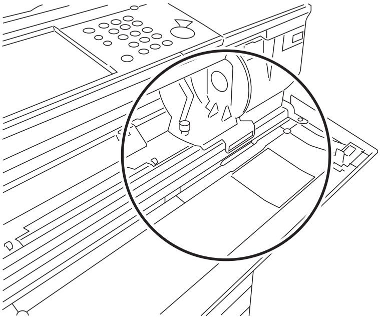
F-7-395

2) Shift down the lever [1], and detach the black toner bottle [2].



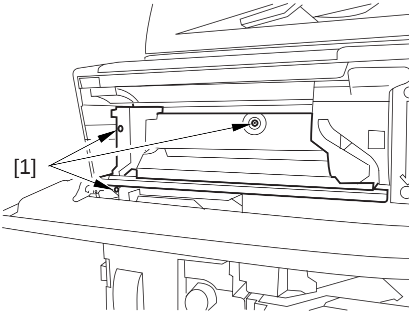
F-7-396

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



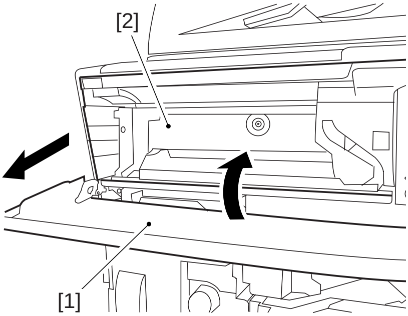
F-7-397

3) Remove the 3 screws [1].



F-7-398

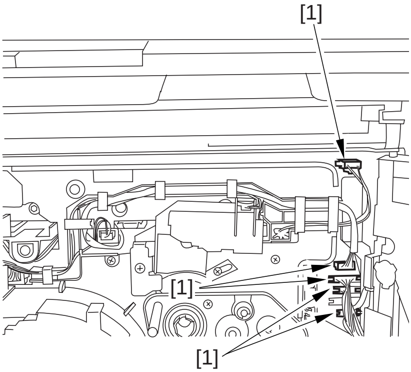
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-399

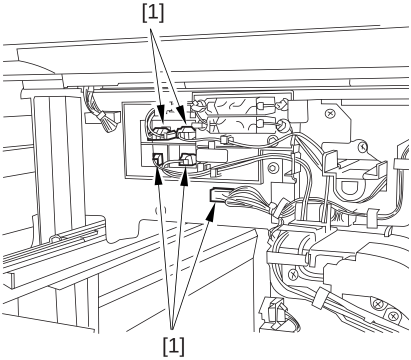
7.11.12.4 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



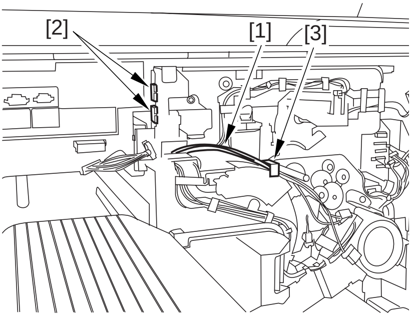
F-7-400

2) Disconnect the 5 connectors [1] found at the upper left.



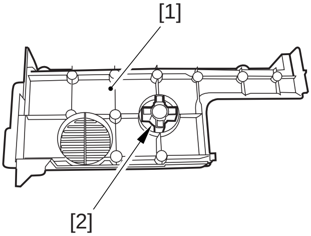
F-7-401

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-402

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

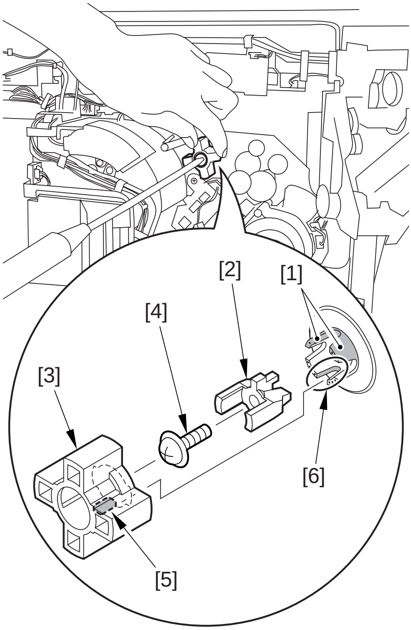


F-7-403

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

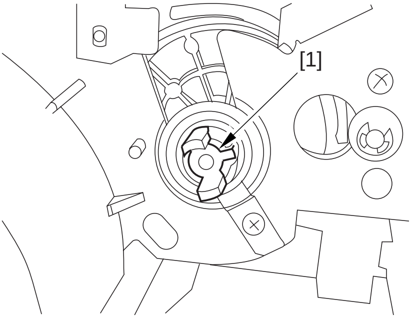
1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



F-7-404

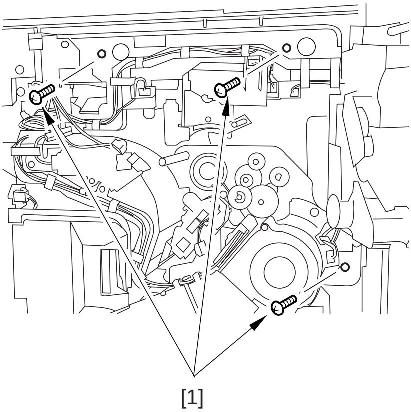
2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.
In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



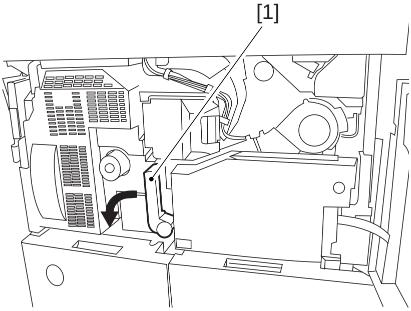
F-7-405

7) Remove the 3 binding screws (M4x8) [1].



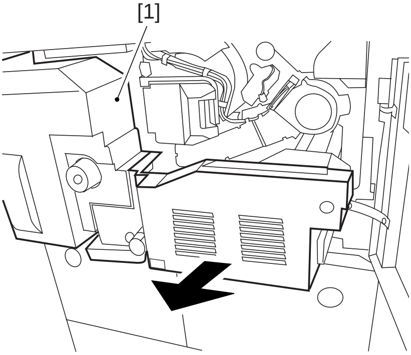
F-7-406

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



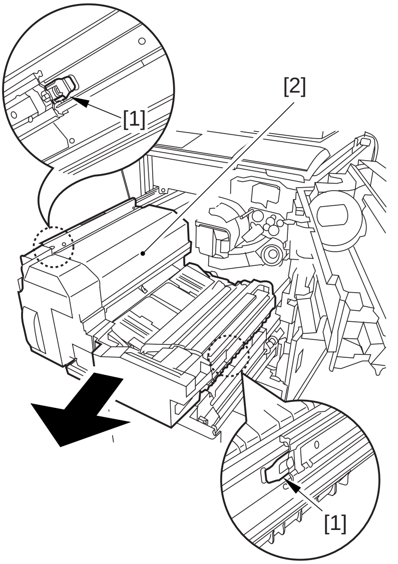
F-7-407

9) Slide out the fixing/feeding assembly [1] toward the front.



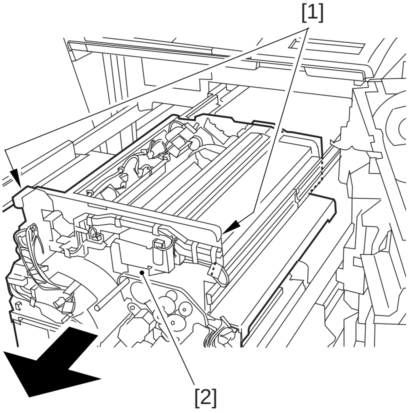
F-7-408

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-409

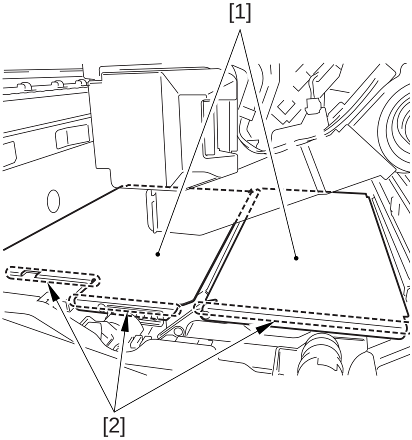
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



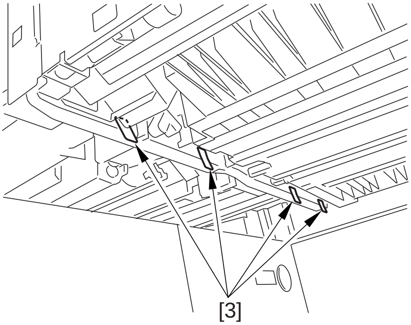
F-7-410

When you have slid out the process unit,

check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:
- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-411



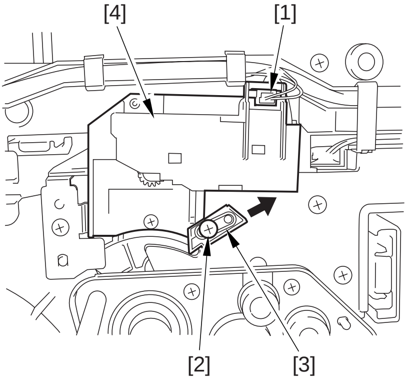
F-7-412

7.11.12.5 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

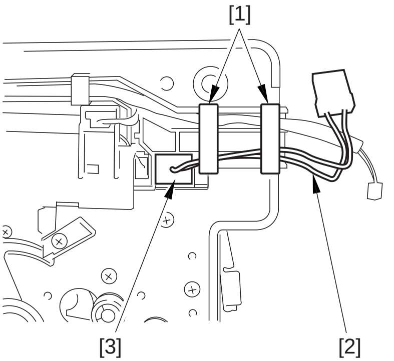
3) Detach the primary charging assembly [4] from the machine.



F-7-413

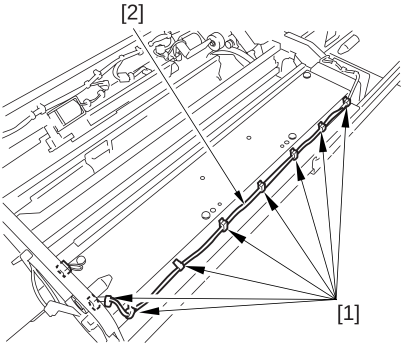
7.11.12.6 Removing the Photosensitive Drum Cleaning Unit

1) Open the 2 cable clamps [1], and lead the harness [2] through the opening [3] in the process unit.



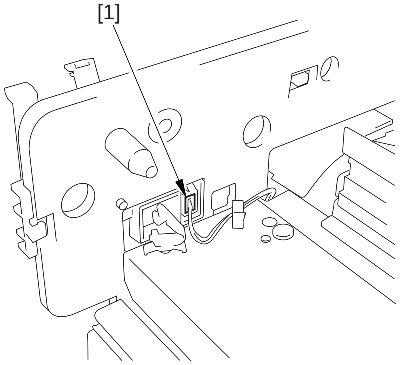
F-7-414

2) Open the 8 cable clamps [1], and move the harness [2] out of the way.



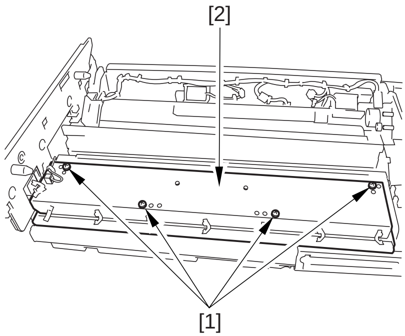
F-7-415

3) Disconnect the connector [1].



F-7-416

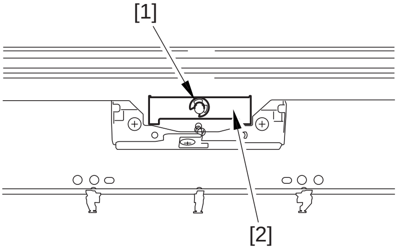
4) Remove the 4 screws [1], and detach the photosensitive drum cleaning unit [2].



F-7-417

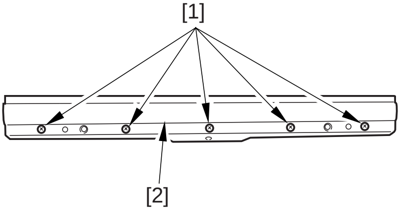
7.11.12.7 Removing the Photosensitive Drum Cleaning Blade

1) Remove the E-ring [1], and detach the locking spring [2].



F-7-418

2) Remove the 5 screw s[1], and detach the photosensitive drum cleaning blade.



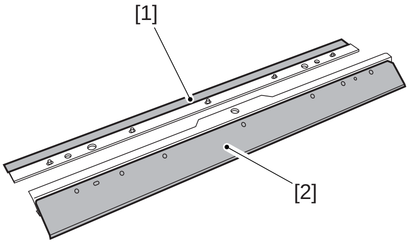
F-7-419

7.11.12.8 Points to Note When Replacing the Photosensitive Drum Cleaning Blade

Be sure of the following when mounting the photosensitive drum cleaning blade:

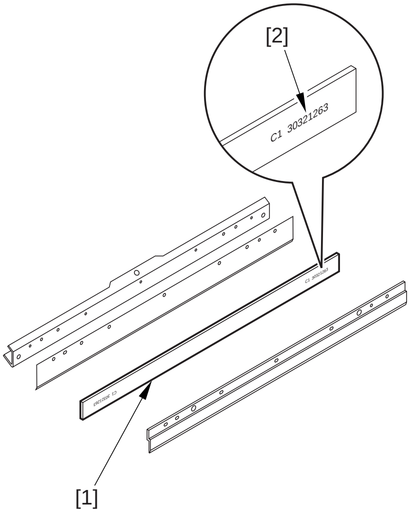
1. Do not turn over the cleaning blade. Replace it when one side has been used.
2. Clean the area [1] of the retainer plate coming into contact with the cleaning blade and the blade plate [2] using alcohol; then, dry wipe it to remove any toner.

⚠ The fine particle of toner under the blade edge can put the blade out of alignment, allowing toner on the photosensitive drum to remain on the drum in the form of residual toner.



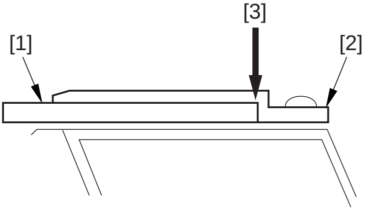
F-7-420

3. Be sure to mount the cleaning blade [1] so that the lot No. [2] faces the front and is upright.



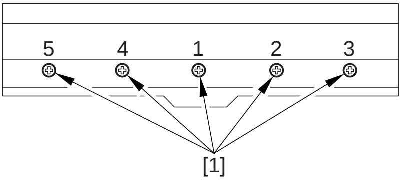
F-7-421

4. Be sure to force the cleaning blade [1] firmly against the retaining plate [2], and check to make sure that there is no gap in the area [3] indicated in the figure.



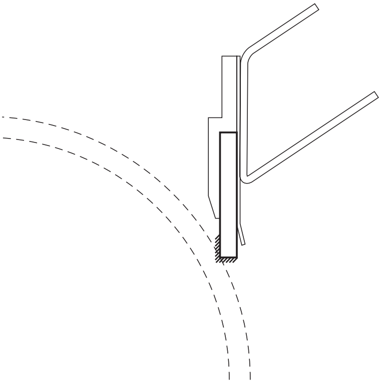
F-7-422

5. Be sure to tighten the screws [1] on the cleaning blade in the order indicated in the figure.



F-7-423

6. Apply blade lubricant (TKN-0480) along the edge (shaded; coming into contact with the photosensitive drum) of the cleaning blade.



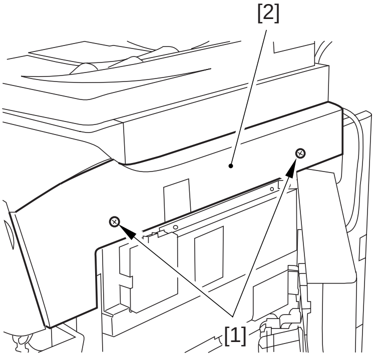
F-7-424

⚠When you have replaced the photosensitive drum cleaning blade, be sure to execute the following service mode item.
Be sure that you execute service mode immediately after the control panel screen has appeared after turning on the main switch. : COPIER>FUNCTION>MISC-P>ITR-ROT.

7.11.13 Photosensitive Drum Cleaner Edge Scraper

7.11.13.1 Removing the Right Cover (upper)

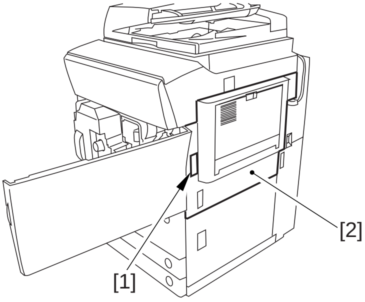
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-425

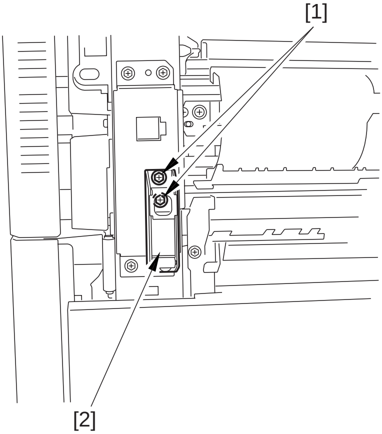
7.11.13.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



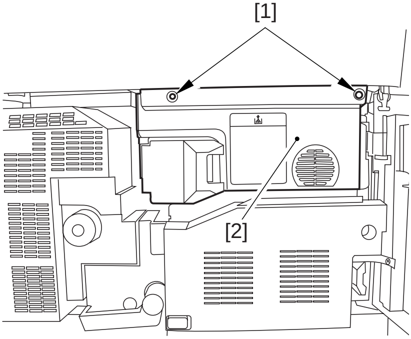
F-7-426

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



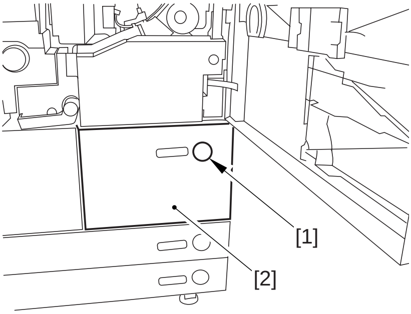
F-7-427

3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



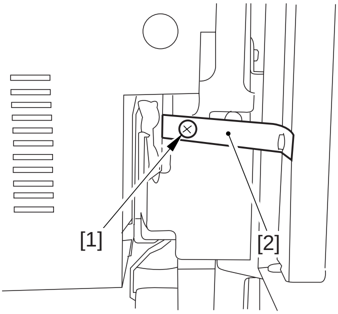
F-7-428

5) Push in the fixing/feeding assembly, and set the lever in place.
6) Push the release button [1] of the right deck, and slide out the right deck [2].



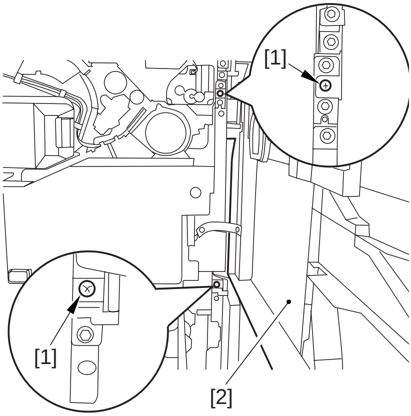
F-7-429

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-430

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

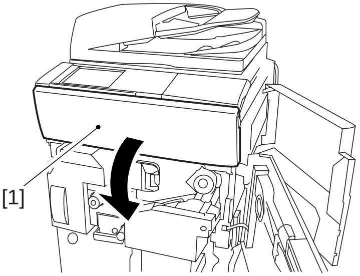


F-7-431

9) Close the right deck.

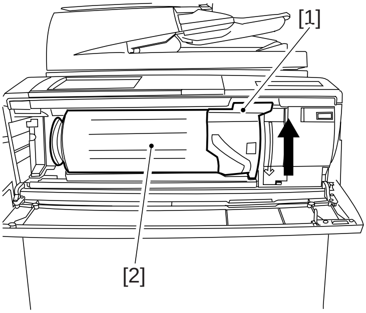
7.11.13.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



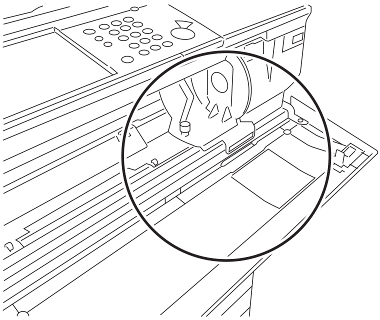
F-7-432

2) Shift down the lever [1], and detach the black toner bottle [2].



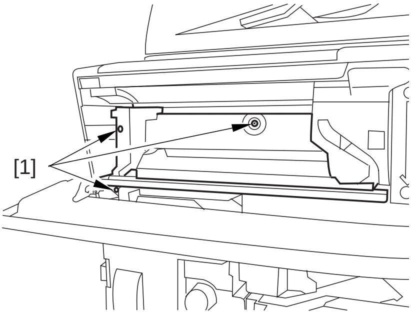
F-7-433

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



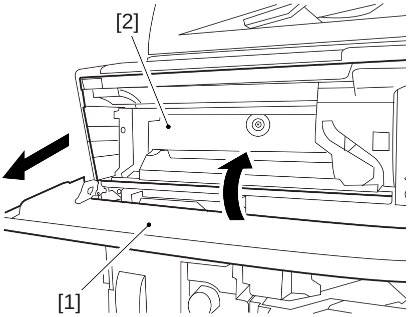
F-7-434

3) Remove the 3 screws [1].



F-7-435

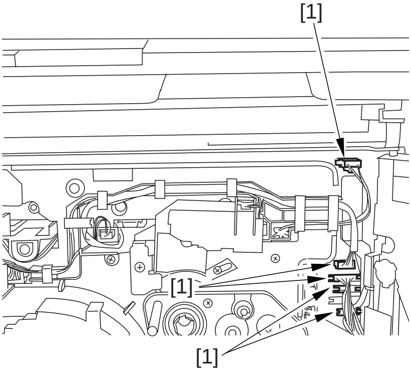
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-436

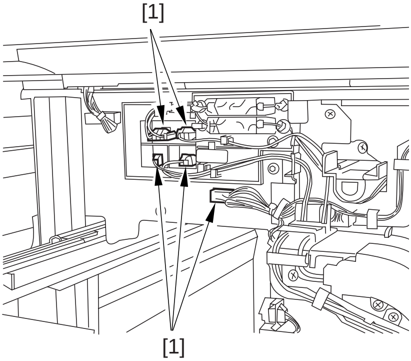
7.11.13.4 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



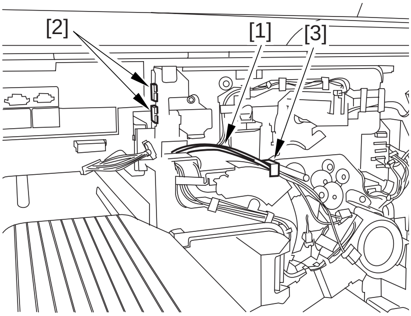
F-7-437

2) Disconnect the 5 connectors [1] found at the upper left.



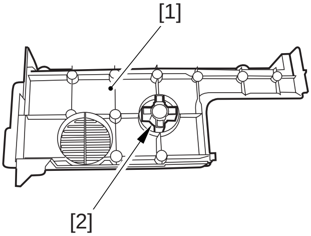
F-7-438

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-439

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

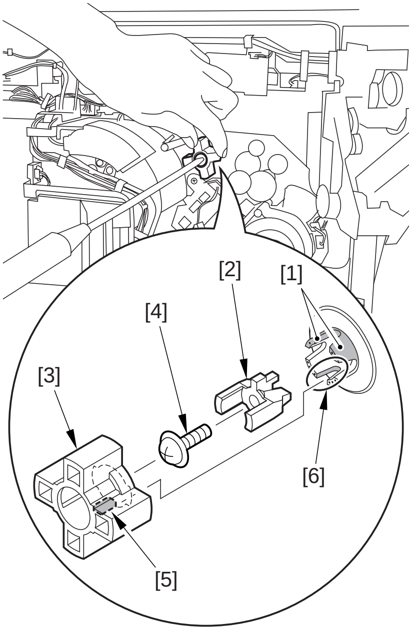


F-7-440

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

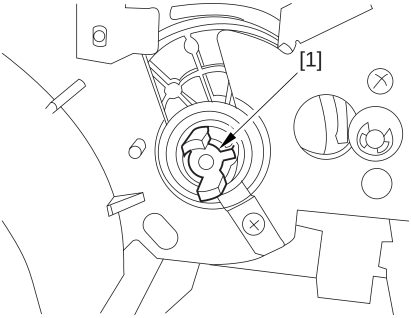
1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



F-7-441

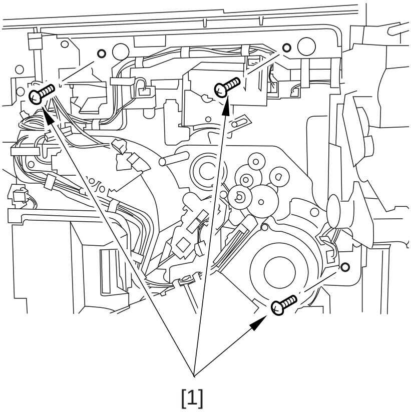
2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.
In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



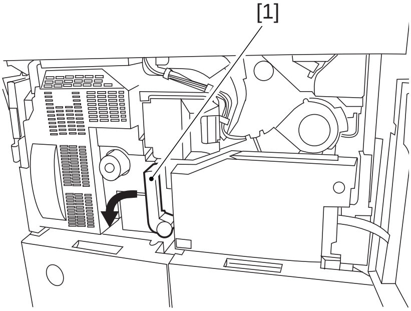
F-7-442

7) Remove the 3 binding screws (M4x8) [1].



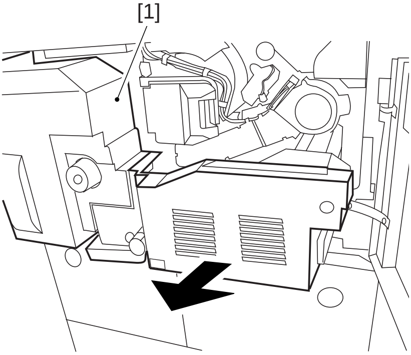
F-7-443

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



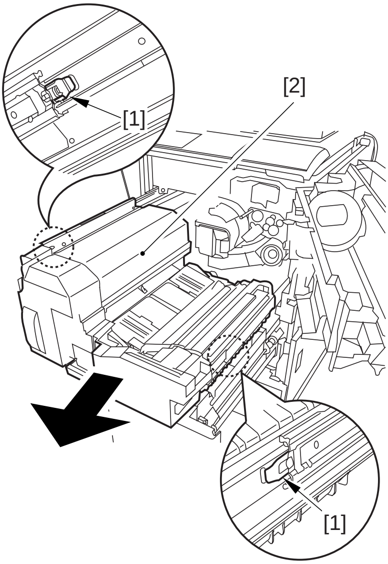
F-7-444

9) Slide out the fixing/feeding assembly [1] toward the front.



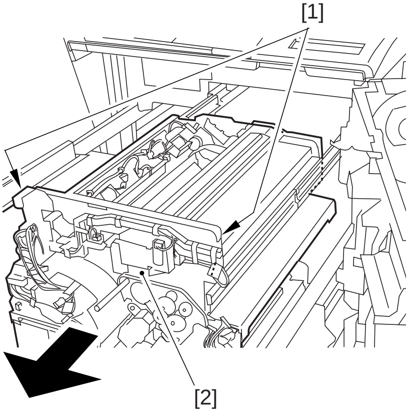
F-7-445

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-446

11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].

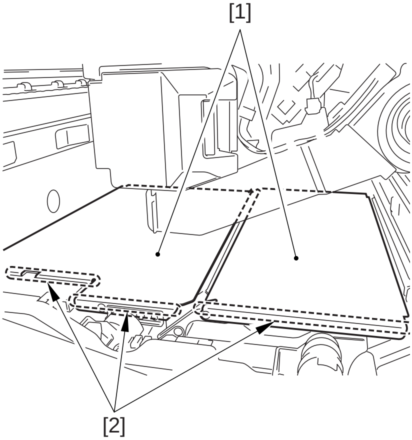


F-7-447

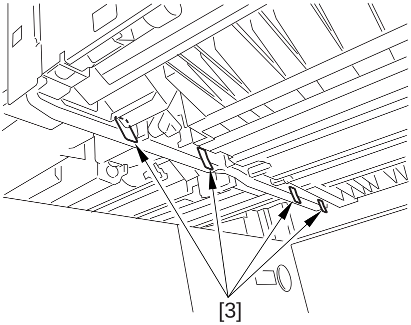
When you have slid out the process unit,

check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-448



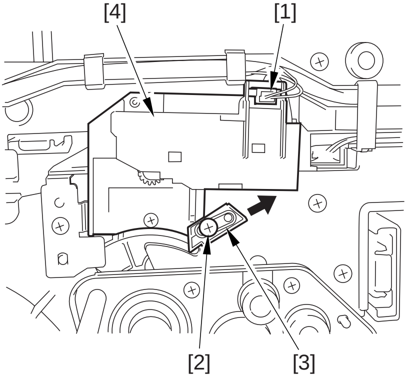
F-7-449

7.11.13.5 Removing the Primary Charging Assembly

1) Disconnect the connector [1].

2) Loosen the screw [2], and slide the primary charging assembly stopper [3] in the direction of the arrow; then, tighten the screw [2].

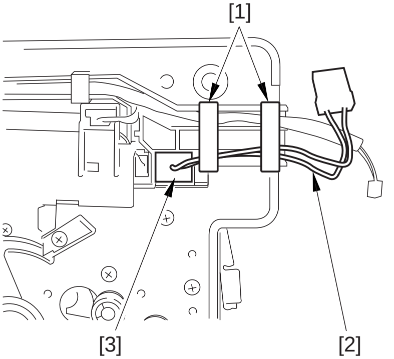
3) Detach the primary charging assembly [4] from the machine.



F-7-450

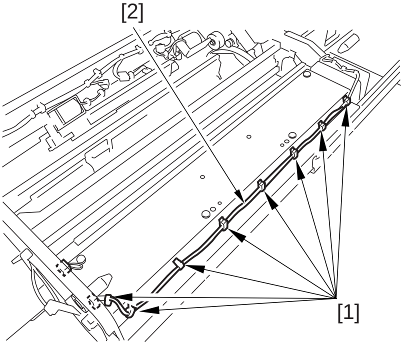
7.11.13.6 Removing the Photosensitive Drum Cleaning Unit

1) Open the 2 cable clamps [1], and lead the harness [2] through the opening [3] in the process unit.



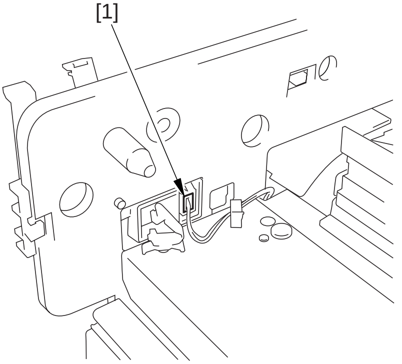
F-7-451

2) Open the 8 cable clamps [1], and move the harness [2] out of the way.



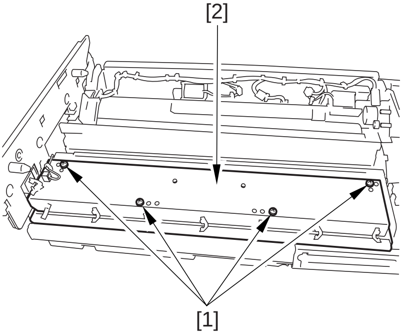
F-7-452

3) Disconnect the connector [1].



F-7-453

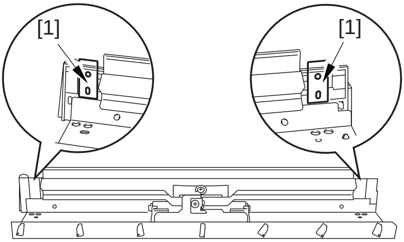
4) Remove the 4 screws [1], and detach the photosensitive drum cleaning unit [2].



F-7-454

7.11.13.7 Removing the Photosensitive Drum Cleaner End Scraper

1) Detach the double-sided adhesive tape (2 strips) of the end scraper [2].



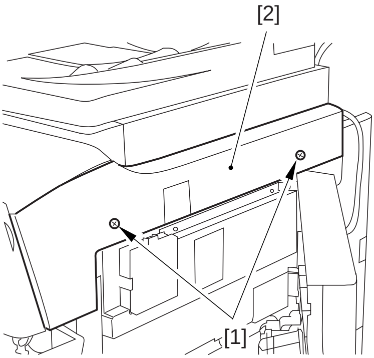
F-7-455

⚠ Points to Note When Mounting the End Scraper
Be sure to clean the surface from which the double-sided tape has been removed with alcohol so that it is free of adhesive.

7.11.14 Hopper Assembly

7.11.14.1 Removing the Right Cover (upper)

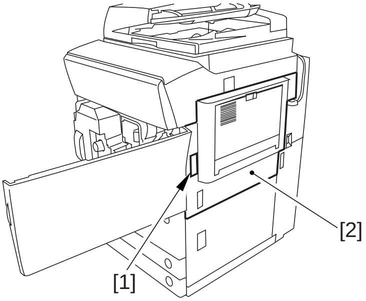
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-456

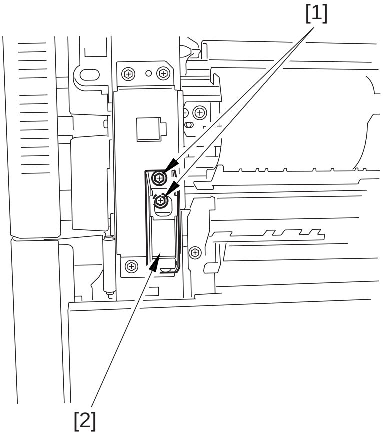
7.11.14.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-457

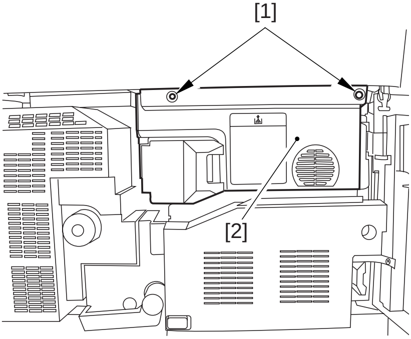
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-458

3) Slide out the fixing/feeding assembly

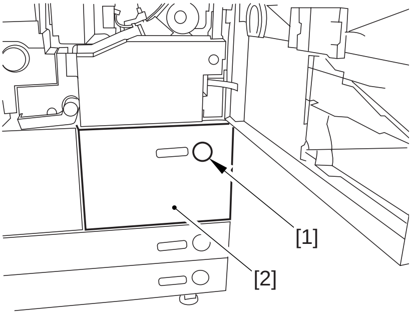
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-459

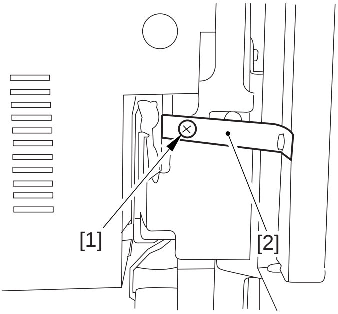
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



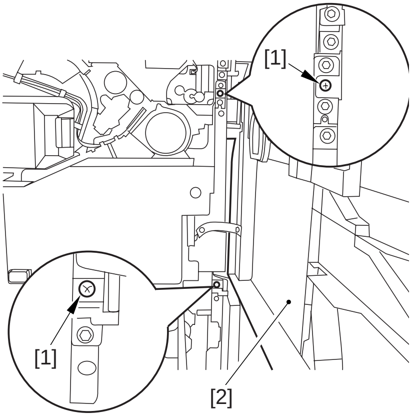
F-7-460

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-461

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

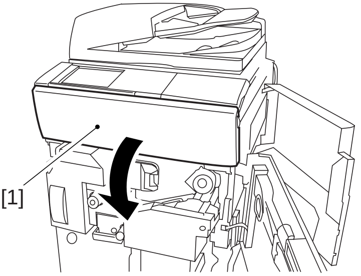


F-7-462

9) Close the right deck.

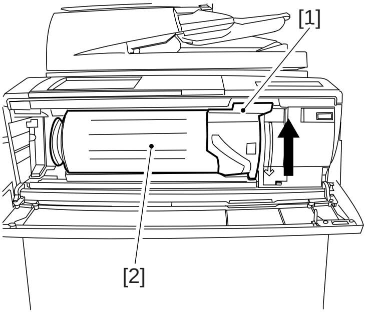
7.11.14.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



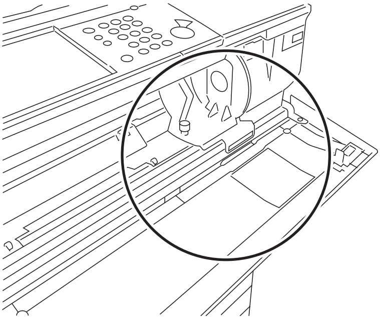
F-7-463

2) Shift down the lever [1], and detach the black toner bottle [2].



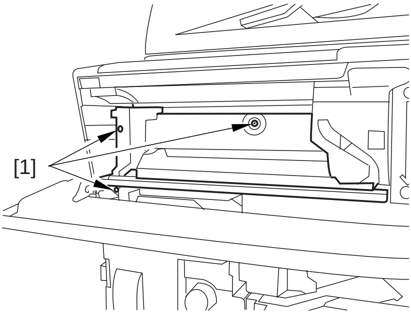
F-7-464

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



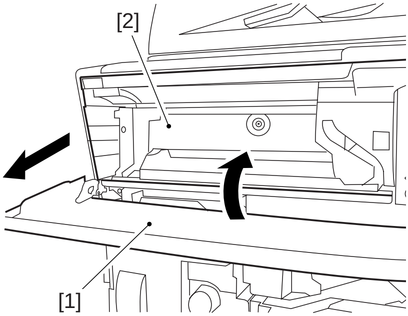
F-7-465

3) Remove the 3 screws [1].



F-7-466

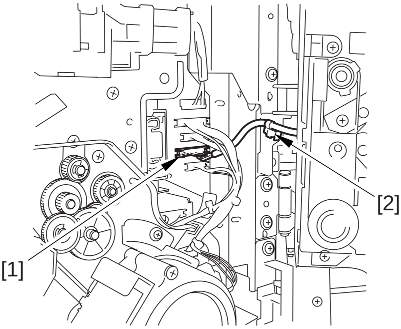
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-467

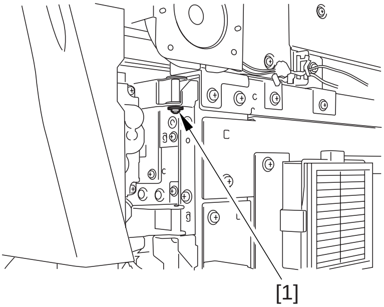
7.11.14.4 Removing the Hopper Assembly

1) Disconnect the connector [1], and pick and detach the wire saddle [2].



F-7-468

2) Close the hopper assembly.
3) Remove the E-ring [1].



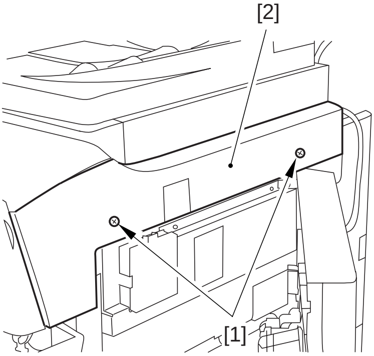
F-7-469

4) Open the hopper assembly, and lift it to detach.

7.11.15 Hopper Supply Motor

7.11.15.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

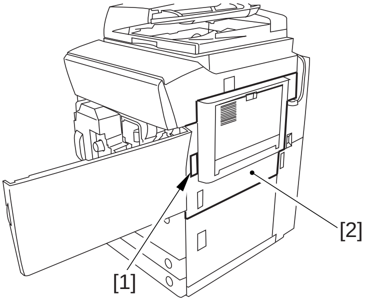


F-7-470

7.11.15.2 Releasing the Front Cover

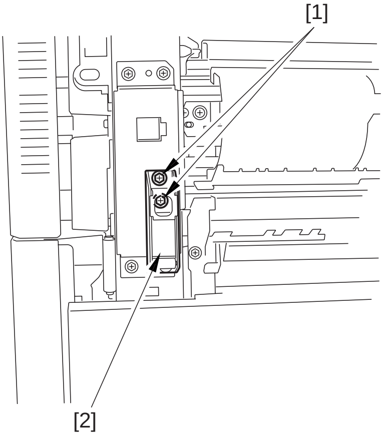
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-471

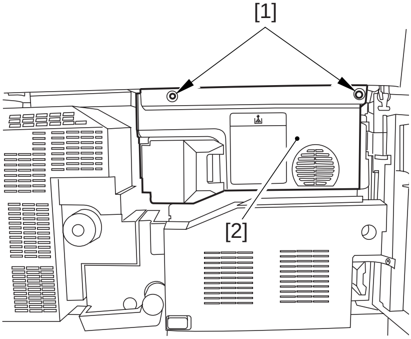
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-472

3) Slide out the fixing/feeding assembly

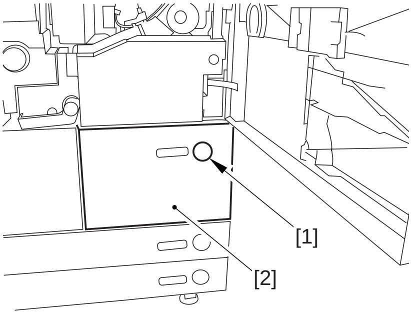
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-473

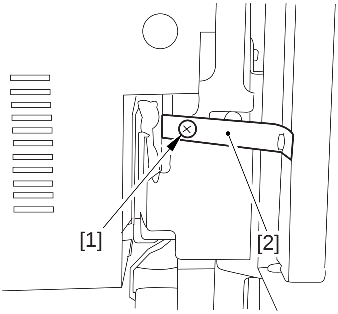
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



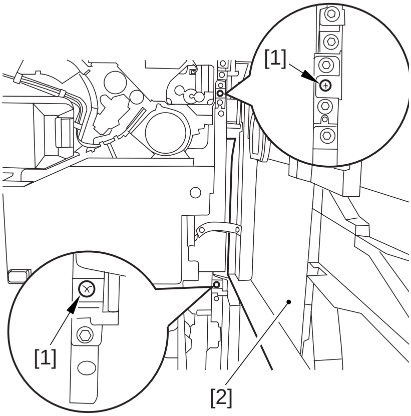
F-7-474

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-475

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

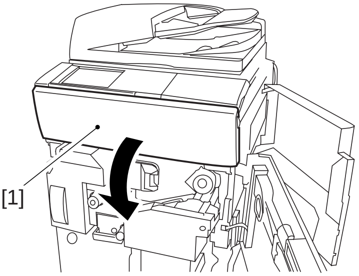


F-7-476

9) Close the right deck.

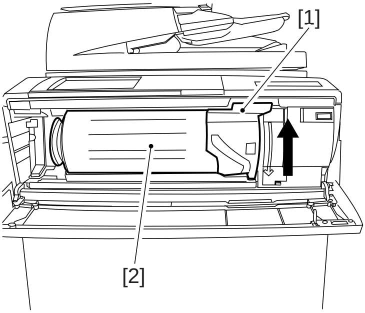
7.11.15.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



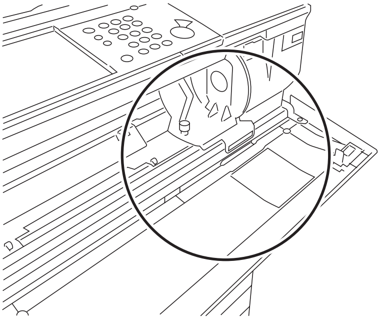
F-7-477

2) Shift down the lever [1], and detach the black toner bottle [2].



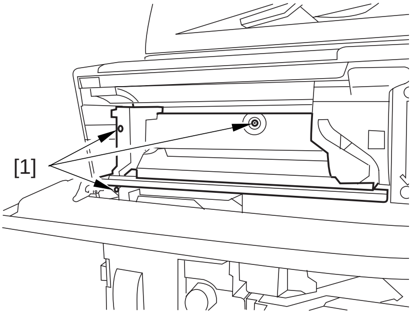
F-7-478

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



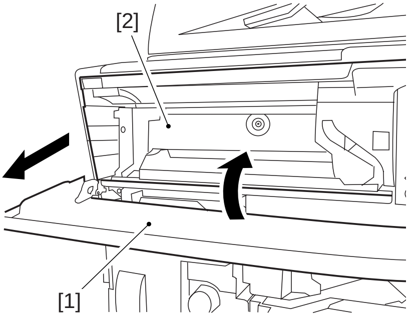
F-7-479

3) Remove the 3 screws [1].



F-7-480

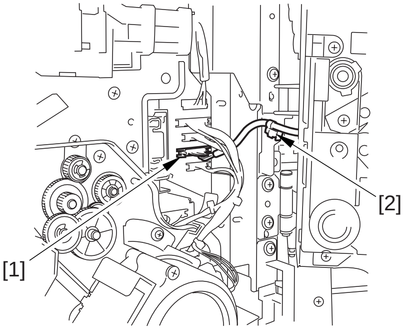
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-481

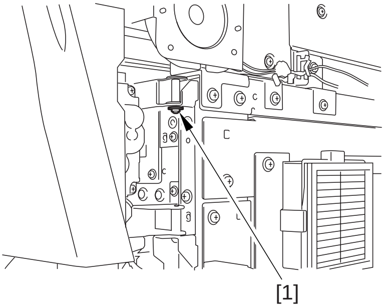
7.11.15.4 Removing the hopper Assembly

1) Disconnect the connector [1], and pick and detach the wire saddle [2].



F-7-482

2) Close the hopper assembly.
3) Remove the E-ring [1].

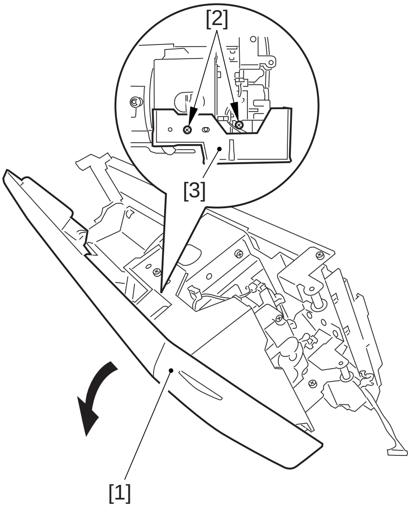


F-7-483

4) Open the hopper assembly, and lift it to detach.

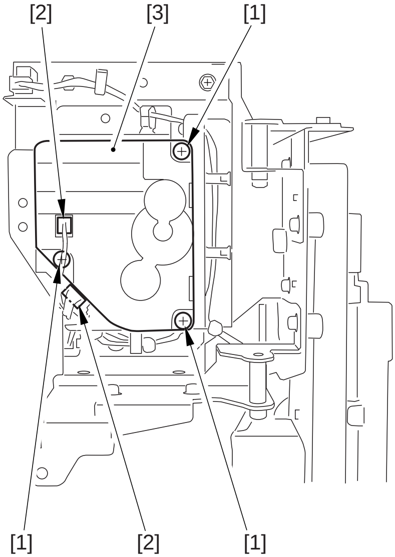
7.11.15.5 Removing the Black Toner Supply Motor

1) Open the black toner supply cover [1]; then, remove the 2 screws [2], and detach the hopper inside cover [3].



F-7-484

2) Remove the 3 screws [1], and disconnect the 2 connectors [1]; then, detach the black toner supply motor [3].

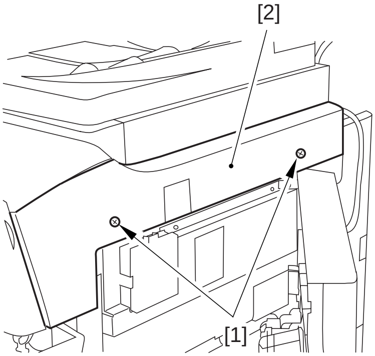


F-7-485

7.11.16 Hopper Strring Motor

7.11.16.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

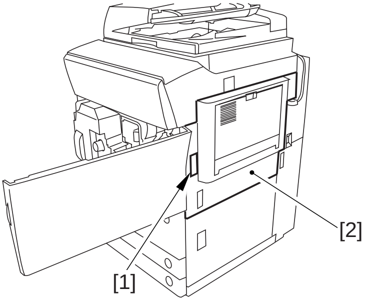


F-7-486

7.11.16.2 Releasing the Front Cover

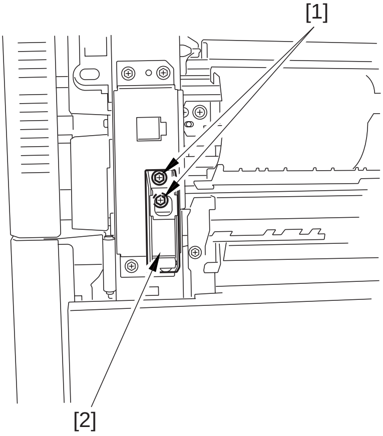
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



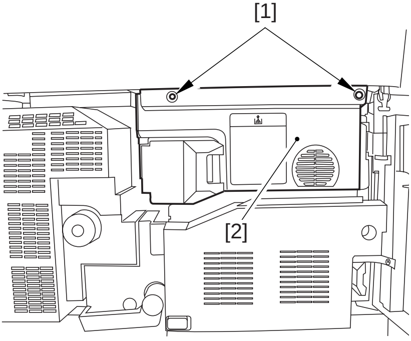
F-7-487

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



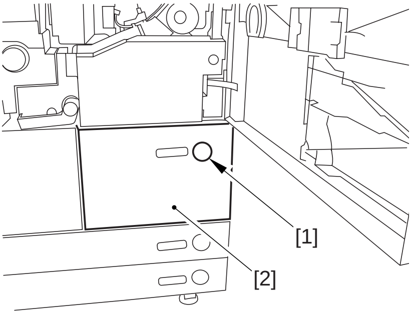
F-7-488

3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



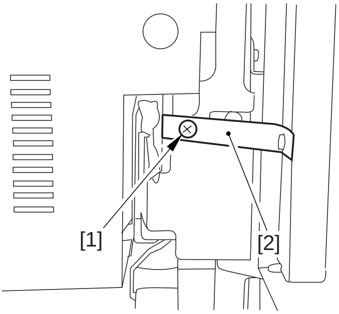
F-7-489

5) Push in the fixing/feeding assembly, and set the lever in place.
6) Push the release button [1] of the right deck, and slide out the right deck [2].



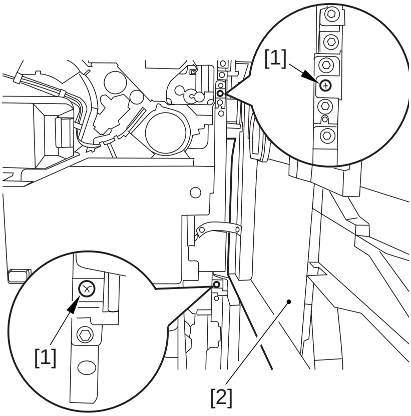
F-7-490

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-491

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

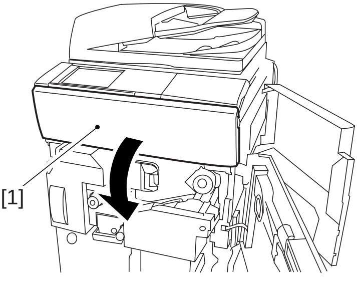


F-7-492

9) Close the right deck.

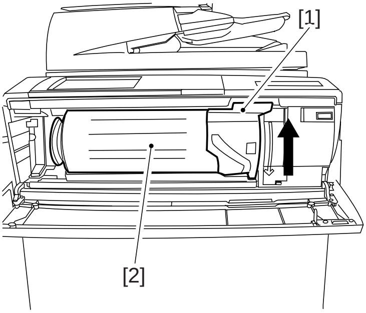
7.11.16.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



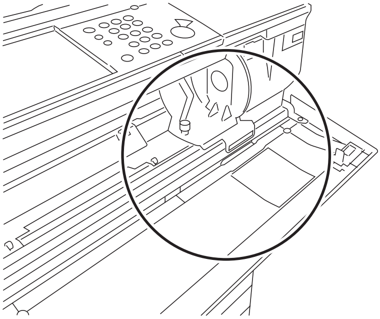
F-7-493

2) Shift down the lever [1], and detach the black toner bottle [2].



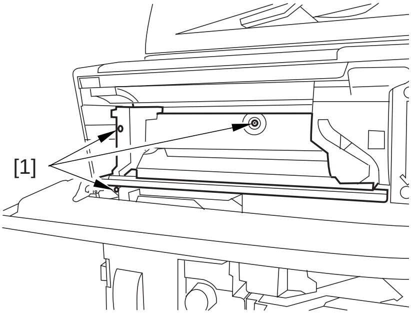
F-7-494

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



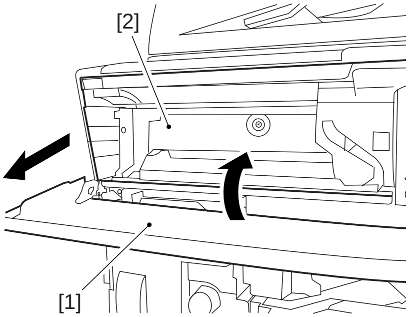
F-7-495

3) Remove the 3 screws [1].



F-7-496

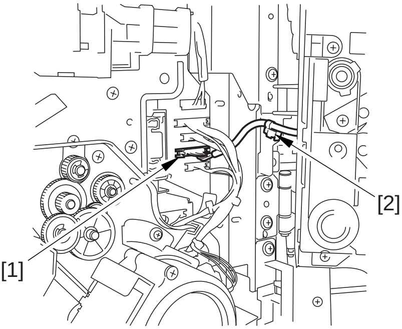
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-497

7.11.16.4 Removing the Hopper Assembly

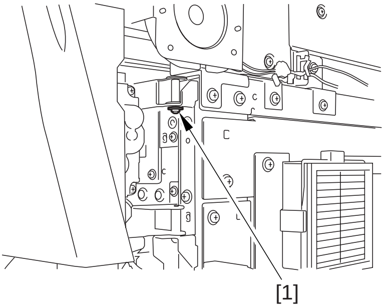
1) Disconnect the connector [1], and pick and detach the wire saddle [2].



F-7-498

2) Close the hopper assembly.

3) Remove the E-ring [1].

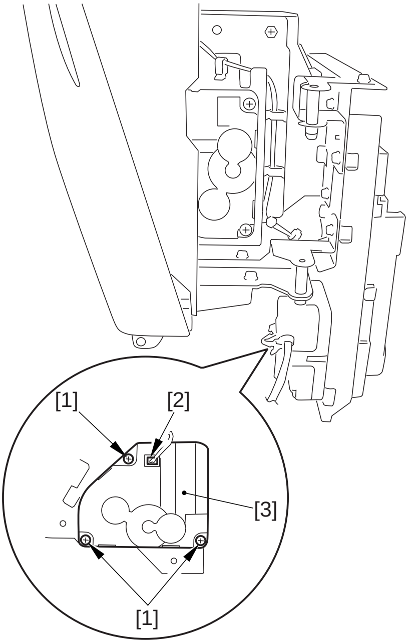


F-7-499

4) Open the hopper assembly, and lift it to detach.

7.11.16.5 Removing the Hopper Stirring Motor

1) Remove the 3 screws [1], and disconnect the connector [2]; then, detach the hopper stirring motor [3].

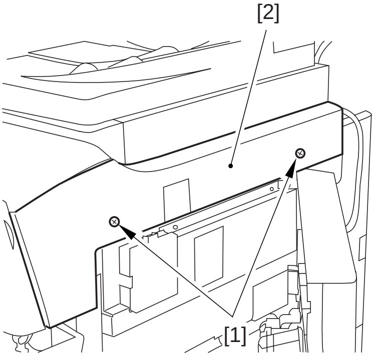


F-7-500

7.11.17 Color Developing Assembly

7.11.17.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

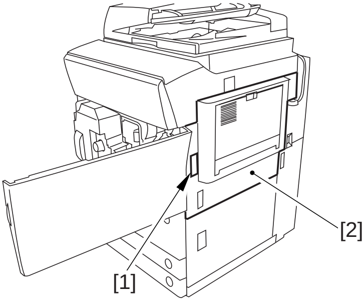


F-7-501

7.11.17.2 Releasing the Front Cover

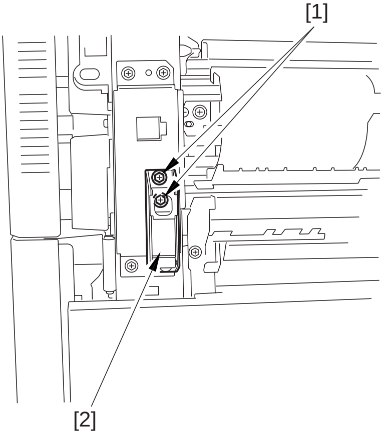
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



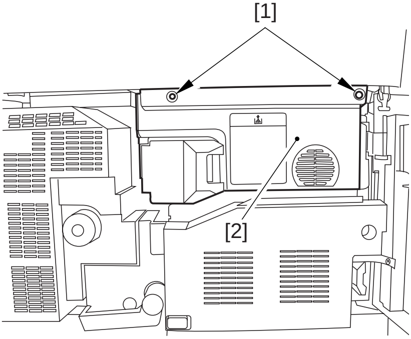
F-7-502

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



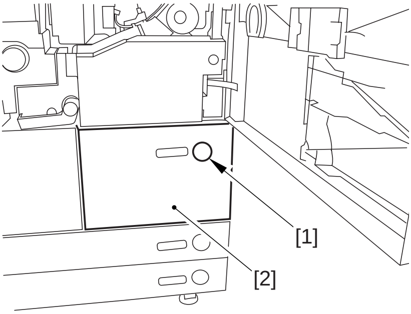
F-7-503

3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



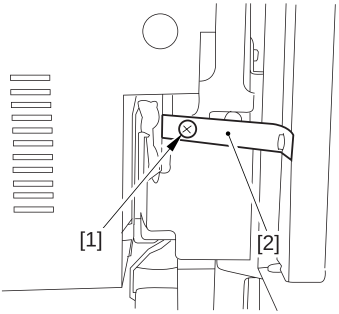
F-7-504

5) Push in the fixing/feeding assembly, and set the lever in place.
6) Push the release button [1] of the right deck, and slide out the right deck [2].



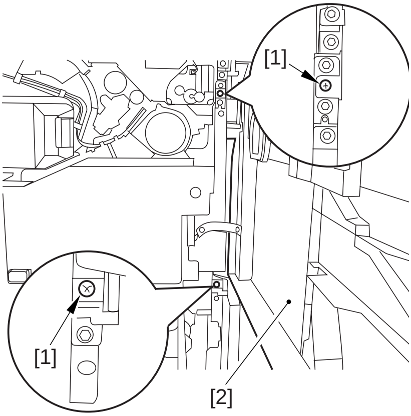
F-7-505

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-506

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

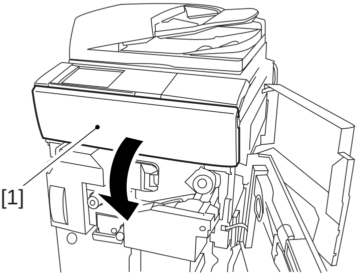


F-7-507

9) Close the right deck.

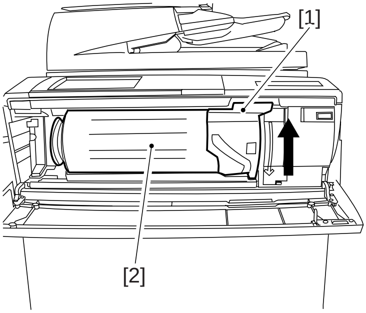
7.11.17.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



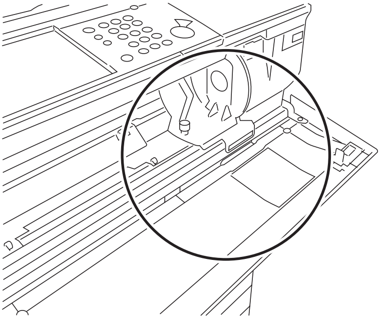
F-7-508

2) Shift down the lever [1], and detach the black toner bottle [2].



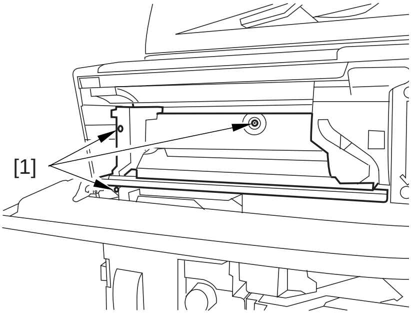
F-7-509

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



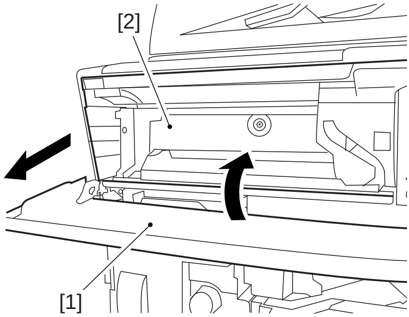
F-7-510

3) Remove the 3 screws [1].



F-7-511

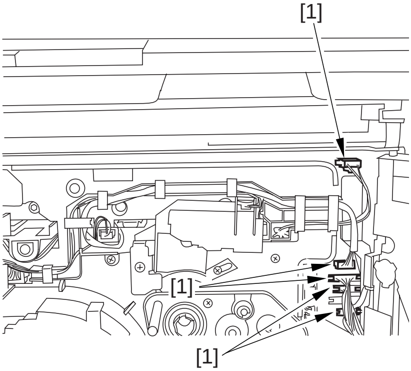
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-512

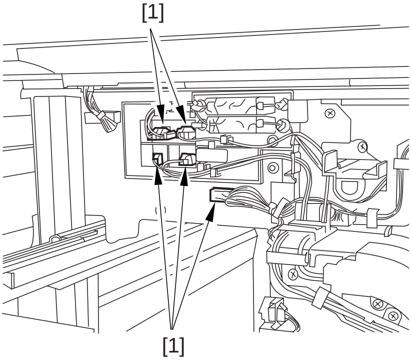
7.11.17.4 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



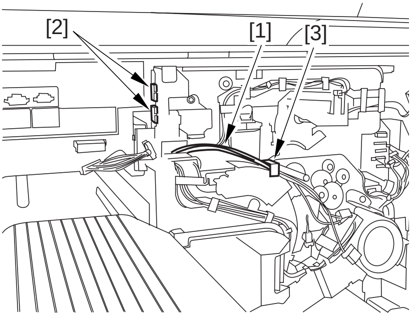
F-7-513

2) Disconnect the 5 connectors [1] found at the upper left.



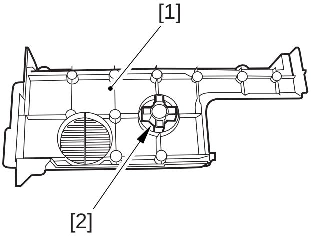
F-7-514

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-515

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

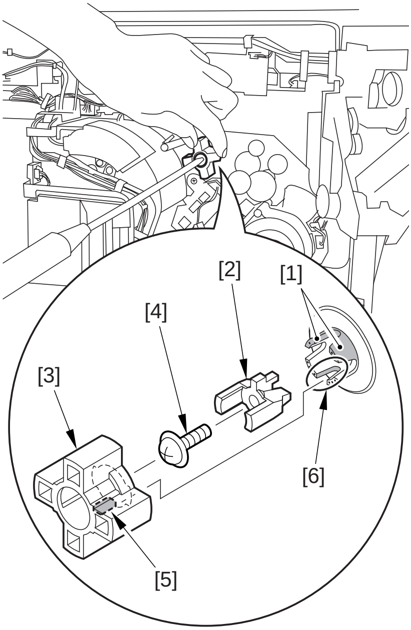


F-7-516

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



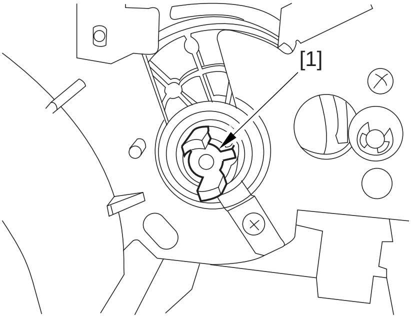
F-7-517

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

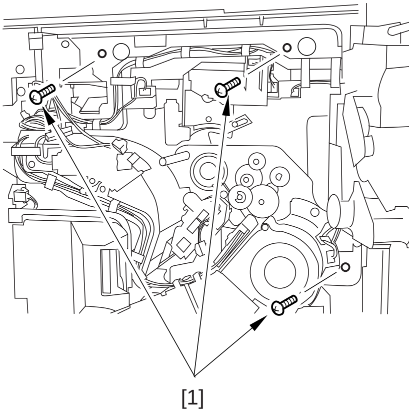
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



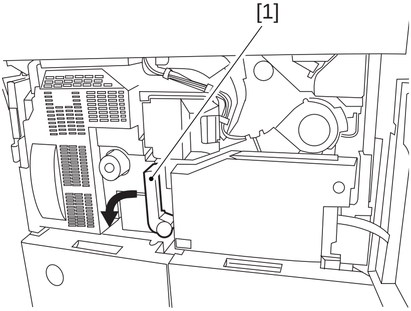
F-7-518

7) Remove the 3 binding screws (M4x8) [1].



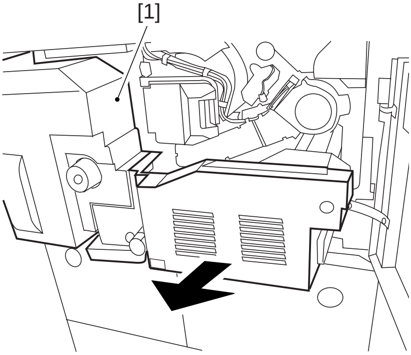
F-7-519

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



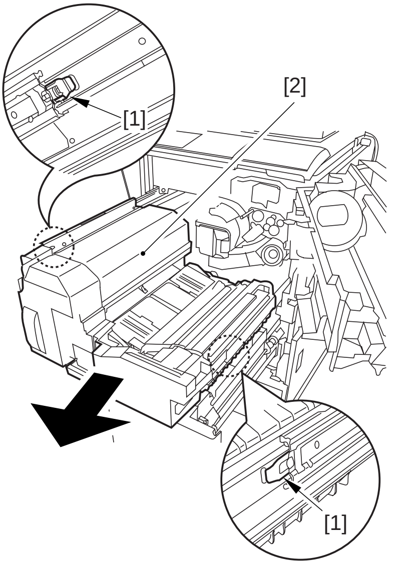
F-7-520

9) Slide out the fixing/feeding assembly [1] toward the front.



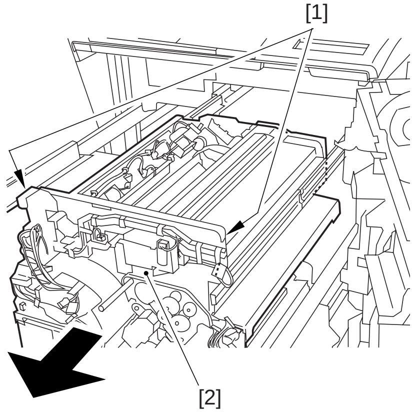
F-7-521

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-522

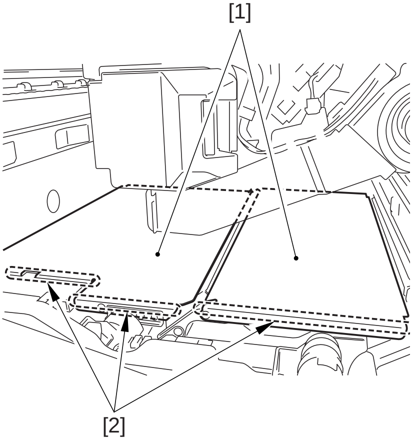
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



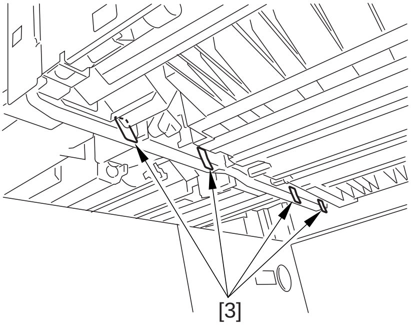
F-7-523

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-524



F-7-525

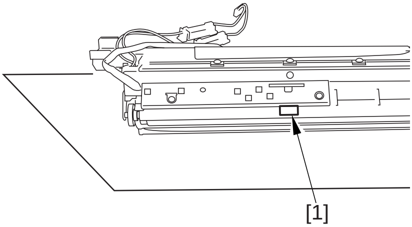
7.11.17.5 Removing the Black Developing Unit

⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore, not to damage the developing cylinder when you have detached the developing unit.

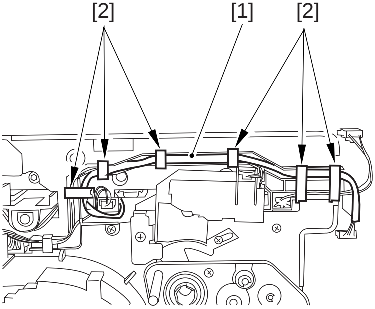
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



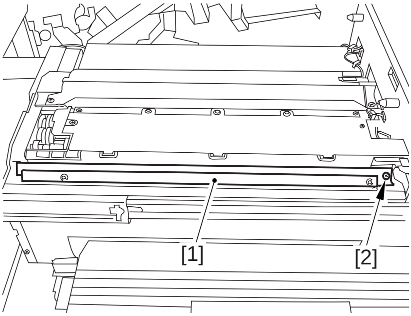
F-7-526

1) Open the harness guide used to fix the high-voltage cable [1] in place.



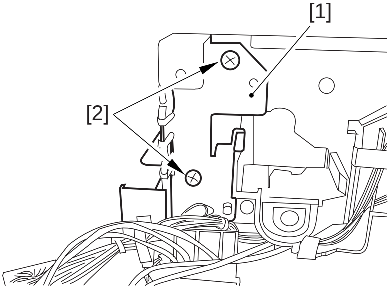
F-7-527

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



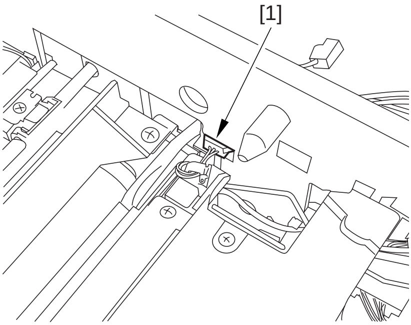
F-7-528

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



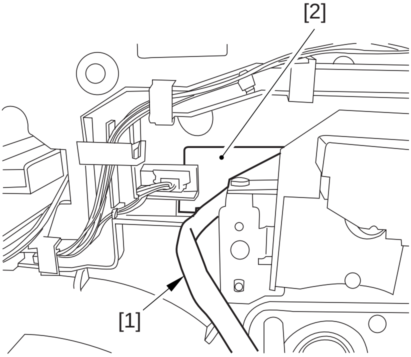
F-7-529

4) Disconnect the connector [1].



F-7-530

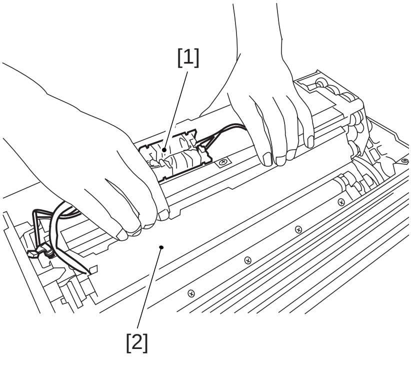
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-531

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

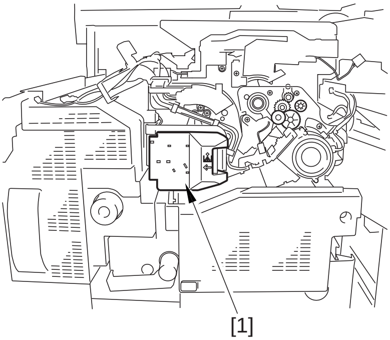
⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-532

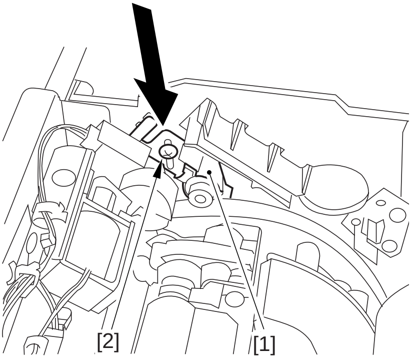
7.11.17.6 Removing the Color Developing Unit

1) Open the color toner supply cover [1].



F-7-533

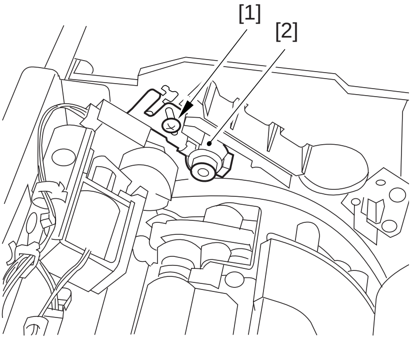
2) Loosen the screw [2] used to fix the torque limiter [1] of the developing rotary in place; then, slide the limiter downward.



F-7-534

3) Fix the torque limiter [2] in place using a screw [1].

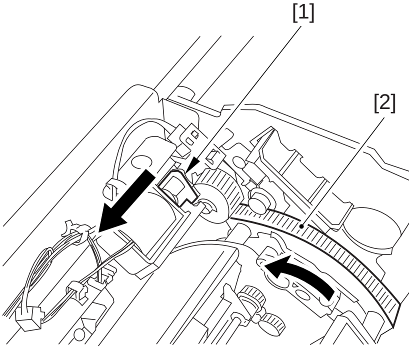
⚠ If you fail to fix the torque limiter in place, the rotary will lose balance when any of the color developing units is removed, possibly damaging the photosensitive drum or the color developing assembly.



F-7-535

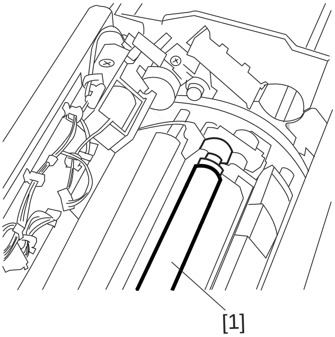
4) Push the lever [1] of the developing rotary solenoid once; then, rotate it counterclockwise by hand so that you have access to the color developing unit you are replacing.

⚠ If you rotate the developing rotary clockwise with a color developing assembly inside it, the anti-stray sheet attached to the sleeve of the color developing assembly can interfere with the photosensitive drum and become detached. Be sure always to rotate the developing rotary counterclockwise.



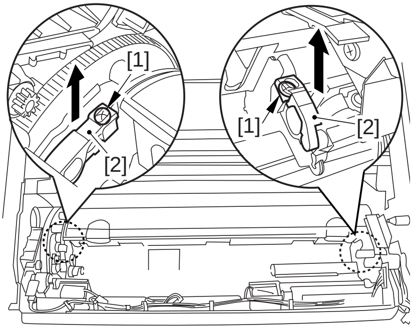
F-7-536

5) Rotate the developing rotary until the developing cylinder [1] of the color developing unit you are removing faces upward.



F-7-537

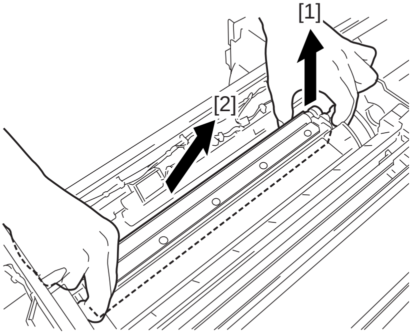
6) Remove the 2 screws [1], and open the developing assembly fixing arm [2].



F-7-538

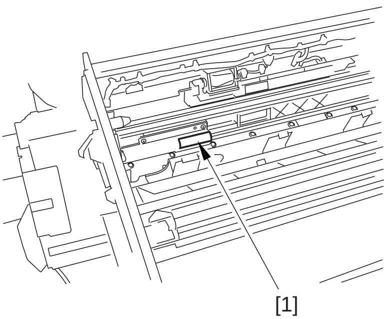
7) Hold the color developing assembly as shown in the figure; then, lift its rear to detach at an angle [2].

⚠ Once you have detached the color developing unit, be sure its supply mouth does NOT face down.



F-7-539

⚠ If you have to rotate the developing rotary farther, be sure to tape the toner supply mouth to prevent spilling the toner.

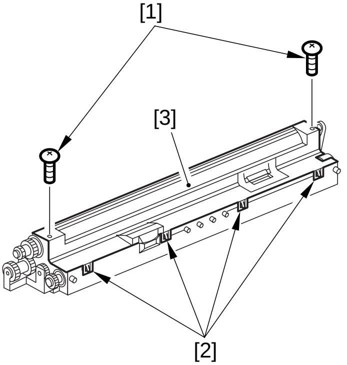


F-7-540

7.11.17.7 When Replacing the Color Developing Unit

1) Open the packing box, and take out the new color developing unit.

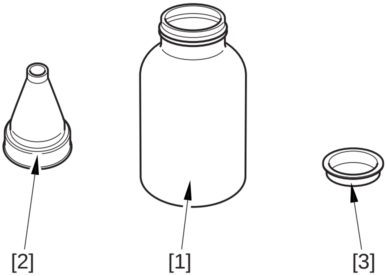
2) Remove the screw [1], and free the 4 hooks [2]; then, remove the developing assembly lid [3].



F-7-541

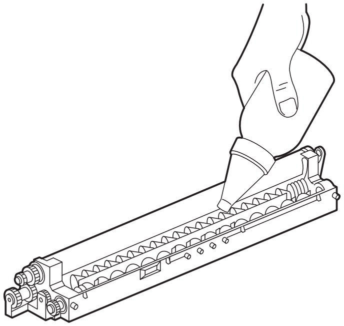
3) Even out the starter by shaking the container about 10 times.

4) Open the lid [2] of the starter bottle [1]; then, remove the middle lid [3], and close the lid.



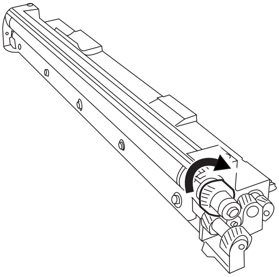
F-7-542

5) Supply half the starter so that it is even in the lengthwise direction around the stirring screw inside the color developing unit.



F-7-543

6) Turn the developing gear 5 to 6 times by hand in the direction indicated in the figure so that the starter will be even inside the unit.

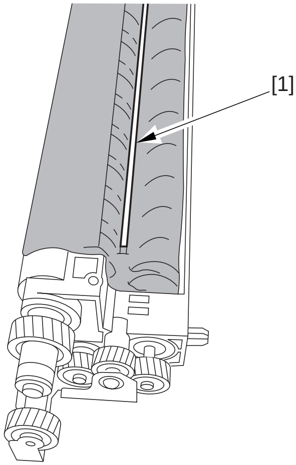


F-7-544

7) Supply the remaining half of the starter around the stirring screw inside the color developing unit.

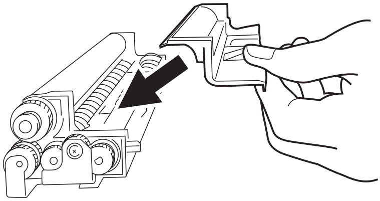
8) Turn the developing gear 5 to 6 times once again so that the starter inside the unit is even.

9) Move the starter found on the inner side of the container wall off the wall.



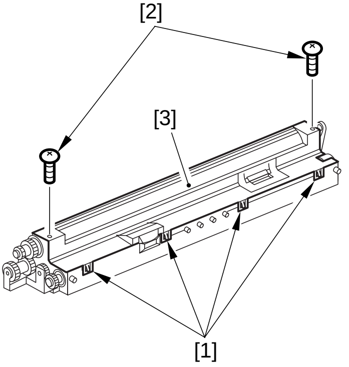
F-7-545

10) Fit the container lid you removed in step 2) back on in the direction indicated in the figure.



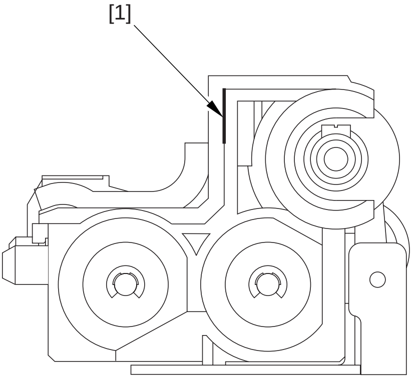
F-7-546

Thereafter, engage the 4 hooks [1]; then, fix the container lid [3] in place using the 2 screws [2] you removed in step 3).



F-7-547

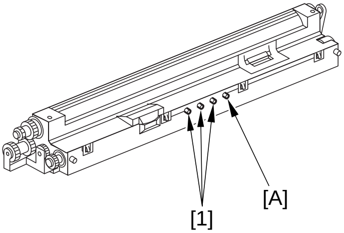
⚠ Force down the lid against the container so that the gap [1] indicated in the figure is small enough to prevent insertion of a transparency.



F-7-548

⚠ When tightening the screw, take full care so that no shavings caused by turning the screw into the lid of the developing assembly and the container will move into the container.

11) Cut off the appropriate tab [1]] to suit the color of the starter you have supplied. The tab A in the figure is an extra tab.



F-7-549

12) Fit the color developing unit by going through the steps used to detach it but in reverse.

13) Turn on the main power switch.

14) Make the following selections in service mode, and set '1', and press the OK key: COPIER>FUNCTION>INSTALL>AINR-OFF.

15) Select one of the following service mode items to suit the color of the starter you have supplied; then, press the OK key.

- if for the Y developing assembly, COPIER>FUNCTION>INSTALL>INISET-Y
- if for the M developing assembly, COPIER>FUNCTION>INSTALL>INISET-M
- if for the C developing assembly, COPIER>FUNCTION>INSTALL>INISET-C
- if for the CMY developing assemblies, COPIER>FUNCTION>INSTALL>INISET-3

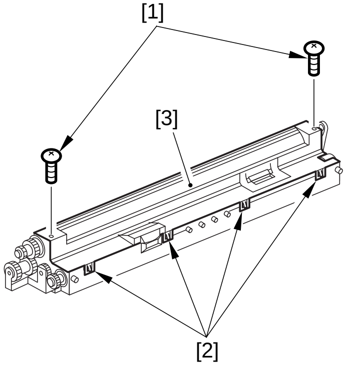
16) Execute the following service mode item: COPIER>FUNCTION>MISC-P>P-PRINT. Store away the generated printout in the service book case. (If there is a previous printout, dispose of it.)

17) End service mode, and start user mode; on the Auto Gradation Correction screen, follow the instructions to execute auto gradation correction (full).

7.11.17.8 Replacing the Starter of the Color Developing Unit

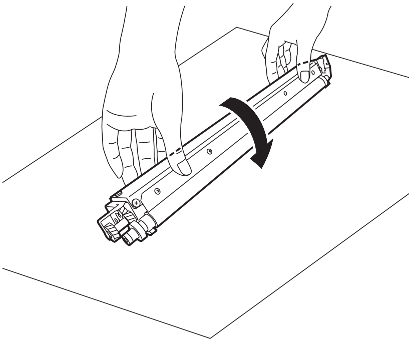
1) Remove the color developing unit.

2) Remove the screw [1], and free the 4 hooks [2]; then, detach the developing unit lid [3].



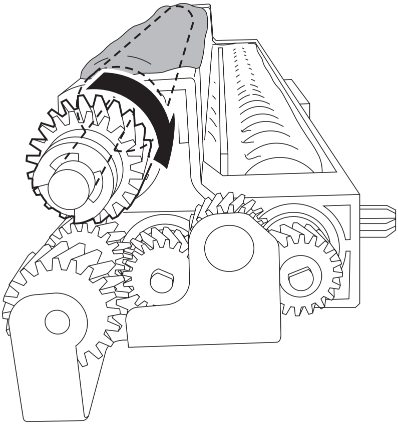
F-7-550

3) On A3 paper or in a vinyl bag, dispose of the contents of the unit by turning it over.



F-7-551

4) Turn back over the developing unit, and turn the developing gear in the direction in which the cylinder normally turns so that the agent will drop into the developing assembly.



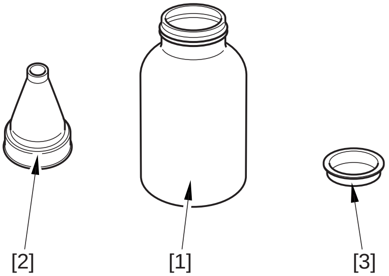
F-7-552

5) Dispose of the agent into a vinyl bag or on paper by turning over the developing unit.

6) Repeat steps 4) and 5) about 3 times (e.g., until no agent drops into the developing assembly).

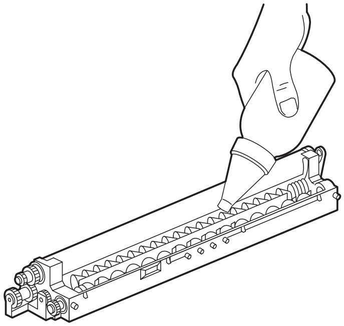
7) Shake the container of the starter about 10 times.

8) Detach the funnel [2] of the starter bottle [1]; then, detach the middle lid [3], and put the funnel back on [2].



F-7-553

9) Pour the starter along the length of the stirring screw inside the color developing unit so that it is about half full.



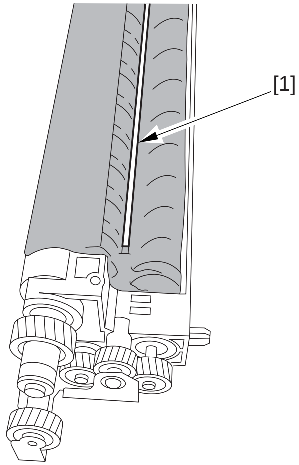
F-7-554

10) Turn the developing gear in its normal direction 5 to 6 by hand to even out the starter inside it.

11) Pour the rest of the starter around the string screw inside the color developing unit.

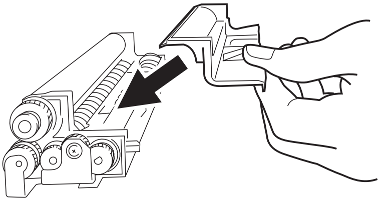
12) Turn the developing gear 5 to 6 times once again to even out the starter inside the unit.

13) Move the starter that may remain on the inner side of the unit wall [1] into the developing assembly.



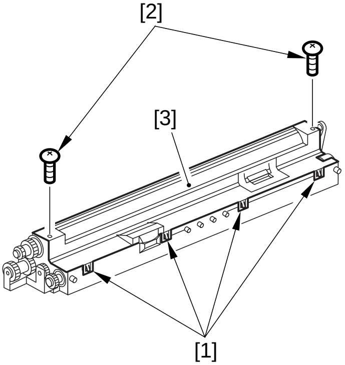
F-7-555

14) Attach the developing assembly lid you removed in step 2), making sure that the lid is oriented as shown.



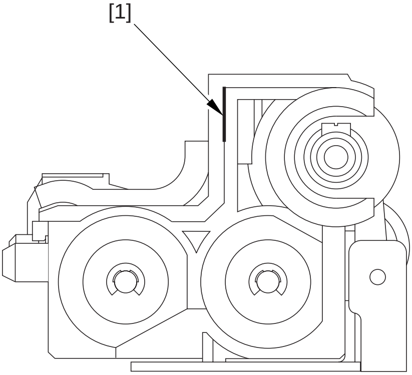
F-7-556

Engage the 4 hooks [1], and attach the developing assembly lid [3] using the 2 screws [2] you removed in step 2).



F-7-557

⚠ Be sure to force the lid against the developing container so that no transparency will enter the gap [1] shown in the figure.



F-7-558

⚠ When tightening the screw, take care so that the shavings from the developing unit or its lid will not enter the unit.

15) Mount the color developing unit using the steps you used to remove it but in reverse.

16) Turn on the main power switch.

17) Make the following selections in service mode; then, enter '1', and press the OK key: COPIER>FUNCTION>INSTALL>AINR-OFF.

18) Select the appropriate mode item from the following to suit the color of the starter you have used; then, press the OK key

- if Y developing assembly, COPIER>FUNCTION>INSTALL>INISET-Y.
- if M developing assembly, COPIER>FUNCTION>INSTALL>INISET-M.
- if C developing assembly, COPIER>FUNCTION>INSTALL>INISET-C.

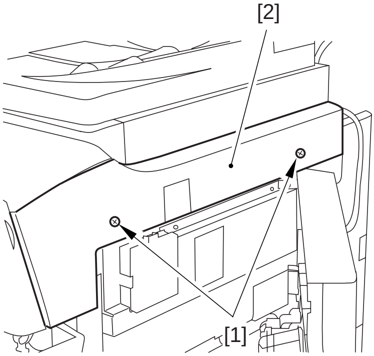
19) Execute the following in service mode: COPIER>FUNCTION>MISC-P>P-PRINT. Then, put the generated printout in the service book case. If there is any previous printout, dispose of it.

20) End service mode, and select 'auto gradation correction' in sure mode; execute auto gradation correction (full correction) by going through the instructions on the screen.

7.11.18 Black Developing Assembly

7.11.18.1 Removing the Right Cover (upper)

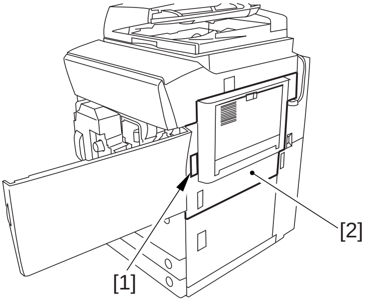
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-559

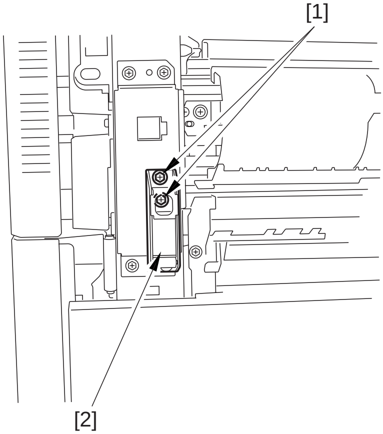
7.11.18.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



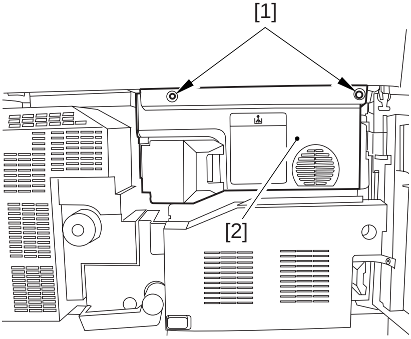
F-7-560

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-561

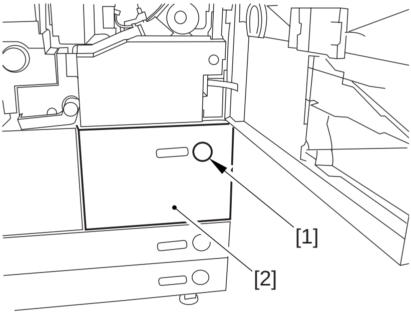
3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-562

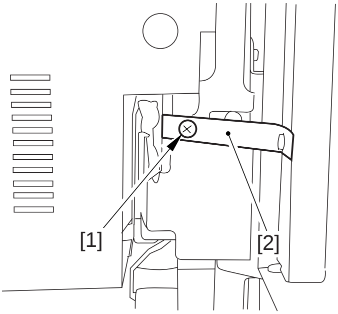
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



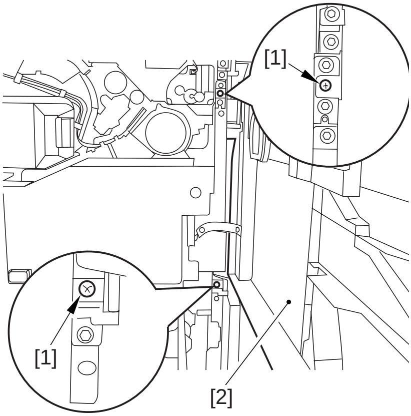
F-7-563

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-564

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

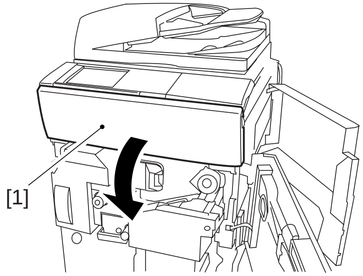


F-7-565

9) Close the right deck.

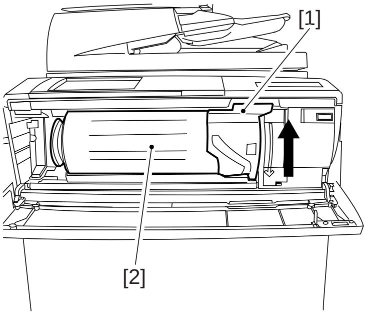
7.11.18.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



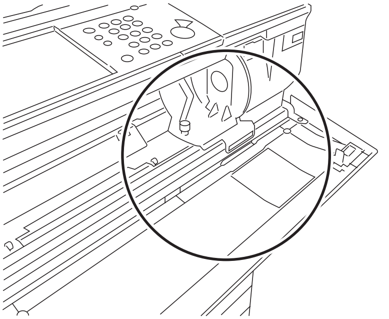
F-7-566

2) Shift down the lever [1], and detach the black toner bottle [2].



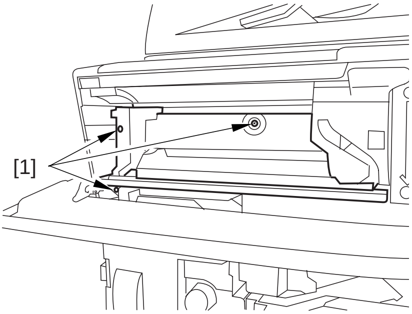
F-7-567

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



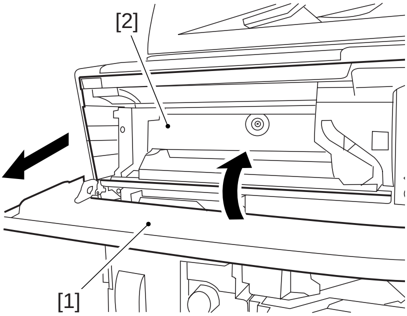
F-7-568

3) Remove the 3 screws [1].



F-7-569

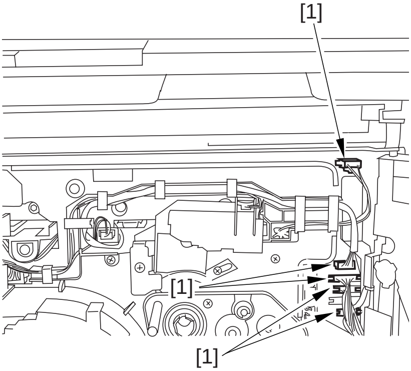
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-570

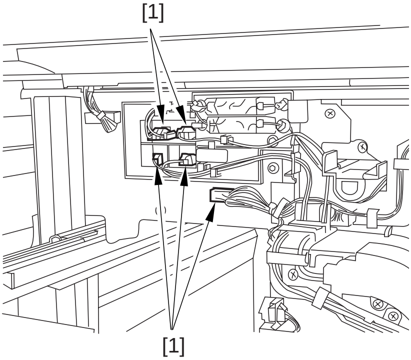
7.11.18.4 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



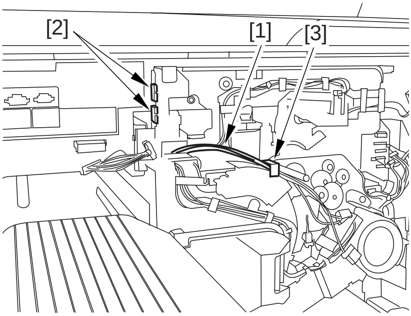
F-7-571

2) Disconnect the 5 connectors [1] found at the upper left.



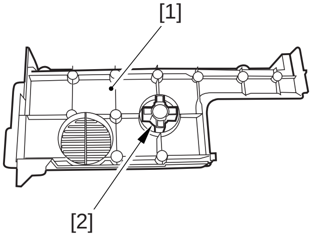
F-7-572

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-573

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

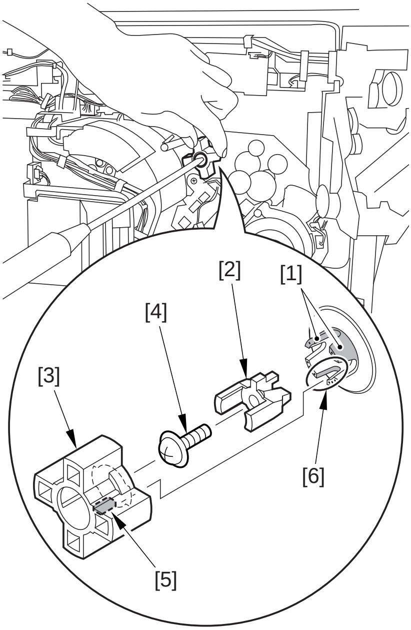


F-7-574

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



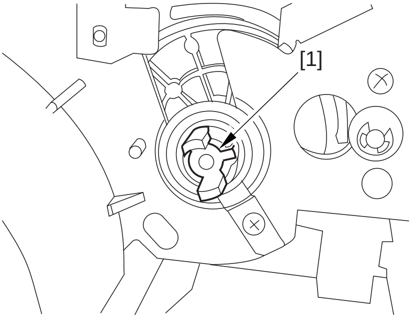
F-7-575

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

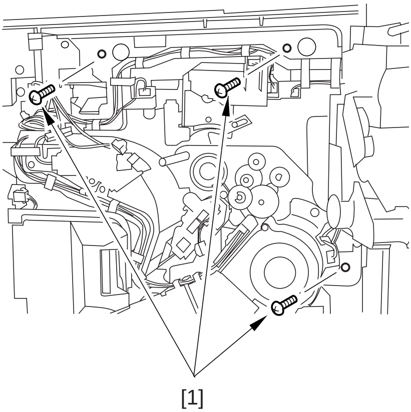
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



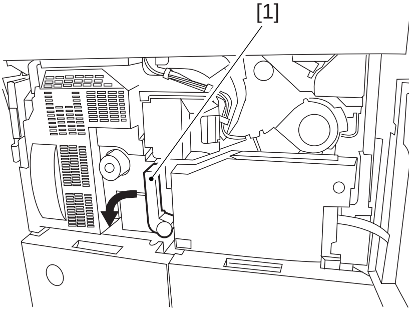
F-7-576

7) Remove the 3 binding screws (M4x8) [1].



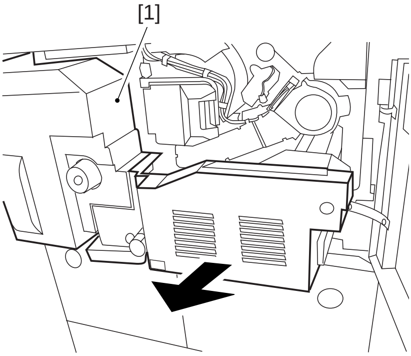
F-7-577

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



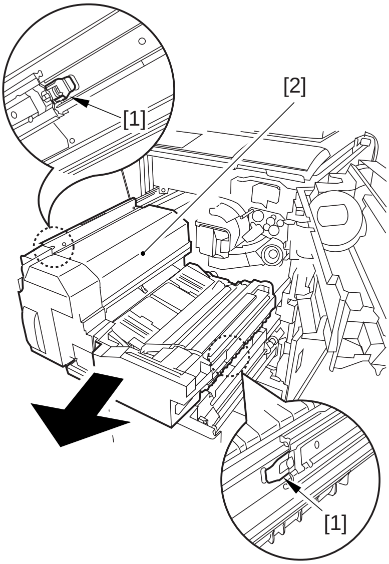
F-7-578

9) Slide out the fixing/feeding assembly [1] toward the front.



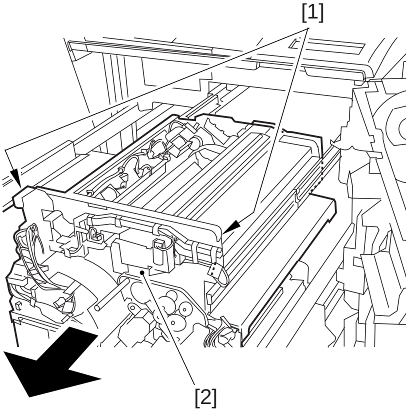
F-7-579

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-580

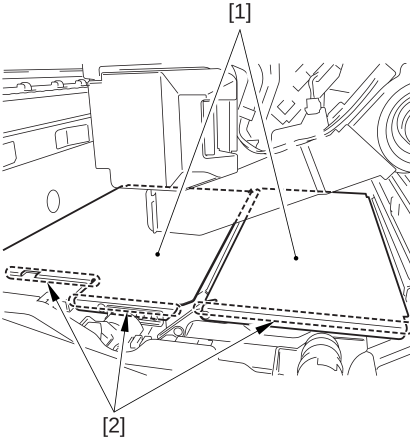
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



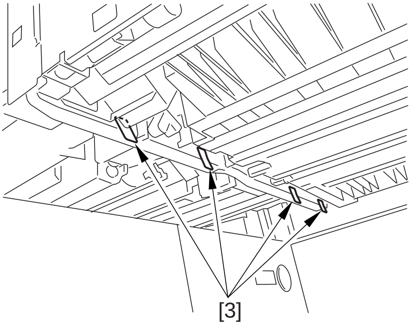
F-7-581

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-582



F-7-583

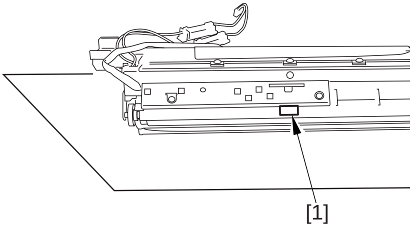
7.11.18.5 Removing the Black Developing Unit

⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore, not to damage the developing cylinder when you have detached the developing unit.

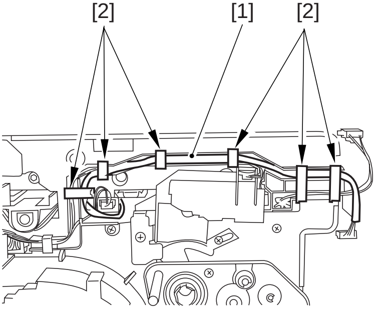
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



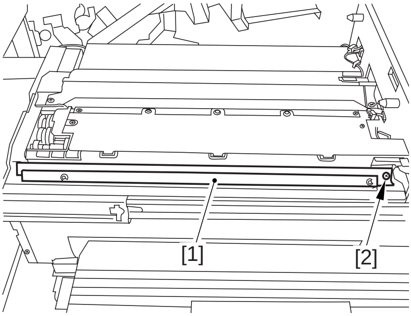
F-7-584

1) Open the harness guide used to fix the high-voltage cable [1] in place.



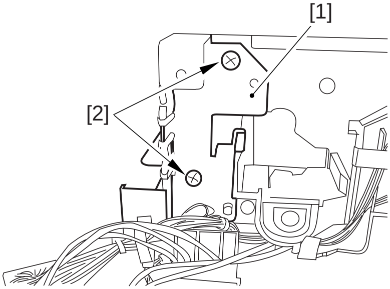
F-7-585

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



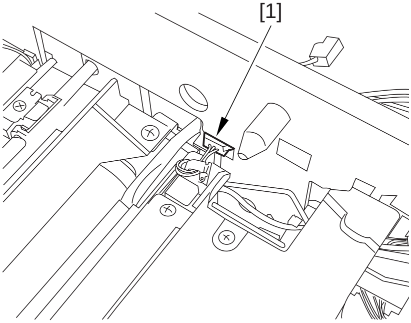
F-7-586

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



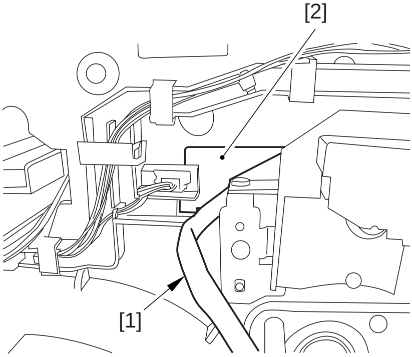
F-7-587

4) Disconnect the connector [1].



F-7-588

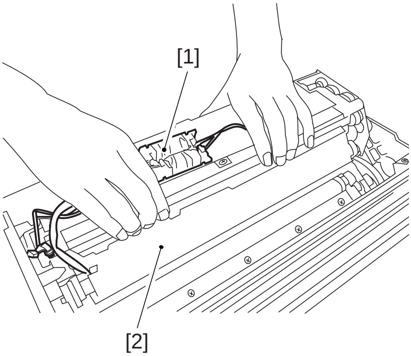
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-589

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

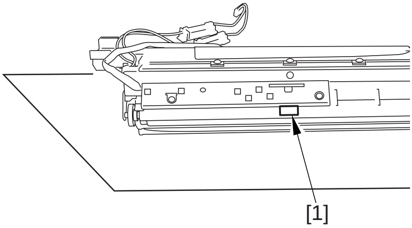
⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-590

7.11.18.6 Points to Note About Replacing the Black Developing Unit

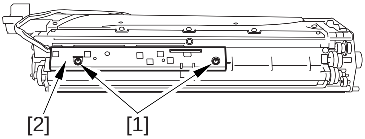
⚠ Do not touch the sensor window [1] shown in the figure during the work. Also, take care not to drop or otherwise subject the black developing unit to impact to avoid damage to the potential sensor



F-7-591

If you are replacing the black developing unit, you will have to remove the potential sensor from the old unit and mount it to the new one as follows:

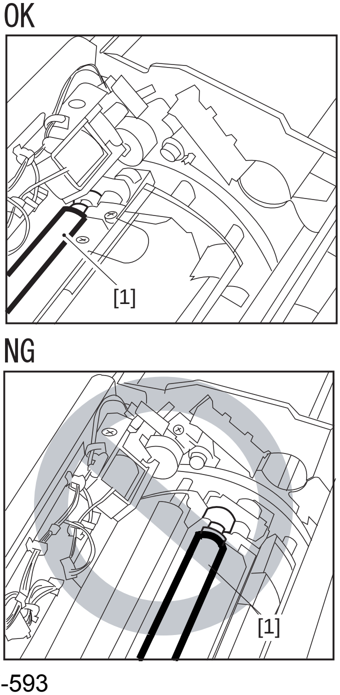
1) Remove the 2 screws [1], and detach the potential sensor holder [2].



F-7-592

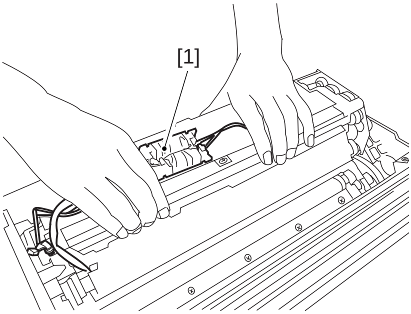
⚠ When setting the black developing unit in the machine, be sure of the following:

1. The developing rotary must be rotated counterclockwise so that the developing cylinder of the color developing assembly is kept facing the direction indicated in the figure.



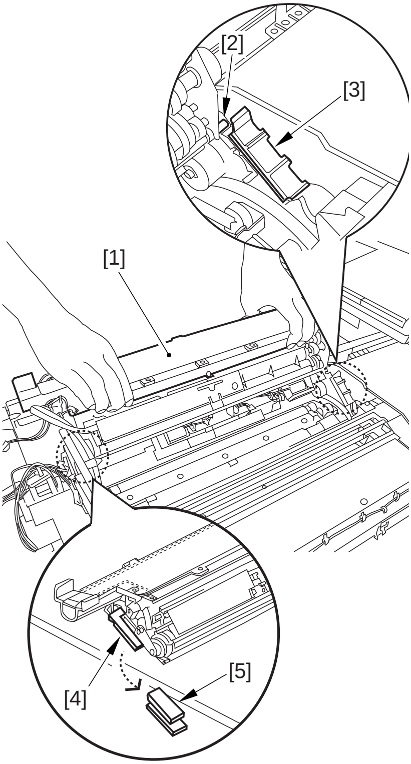
F-7-593

2. If you put the high-voltage cable of the black developing assembly inside the machine when setting the assembly, you can trap the cable; to avoid trapping, be user to keep the high-voltage cable [1] on top of the black developing assembly as shown in the figure.



F-7-594

Hold the black developing assembly [1] by its ends as shown in the figure; then, while keeping it level, push it in at an angle to set. When doing so, be sure to match the boss [2] found at the rear of the developing assembly against the left guide [3] found at the rear of the machine. Be sure also to match the rib [4] found at the front of the developing assembly against the right guide [5] found at the front of the machine.

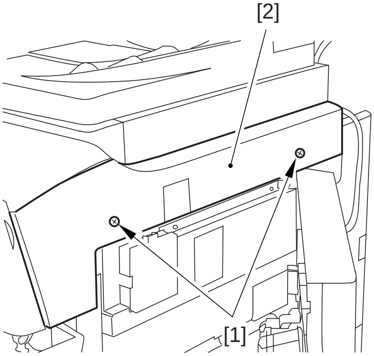


F-7-595

7.11.19 Black Developing Cylinder

7.11.19.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

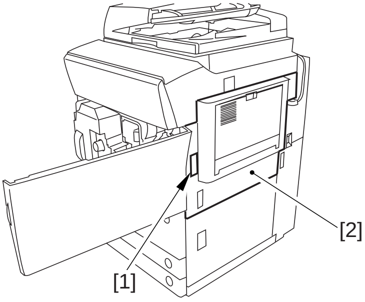


F-7-596

7.11.19.2 Releasing the Front Cover

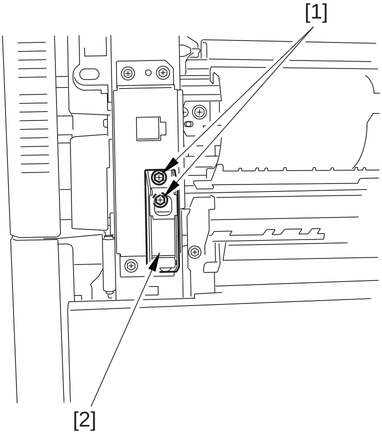
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-597

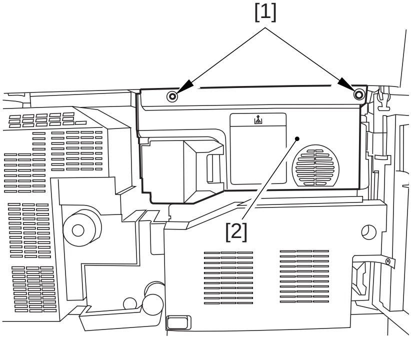
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-598

3) Slide out the fixing/feeding assembly

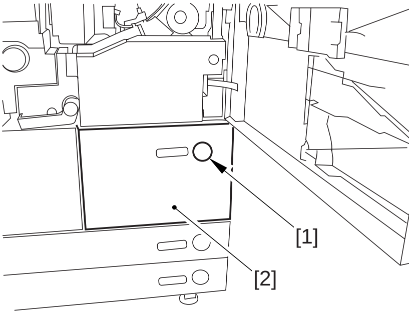
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-599

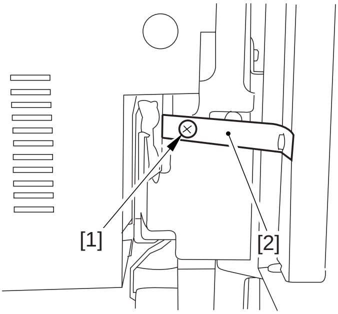
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



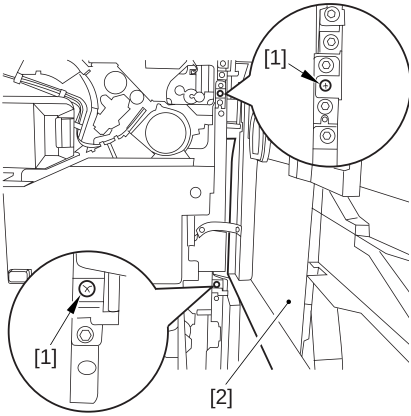
F-7-600

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-601

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

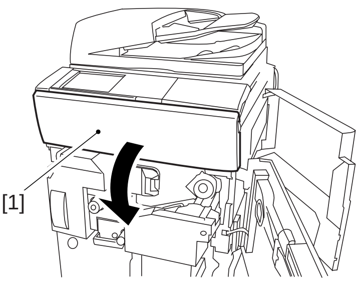


F-7-602

9) Close the right deck.

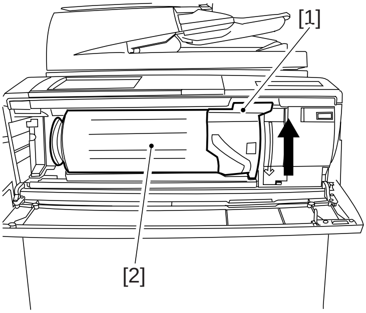
7.11.19.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



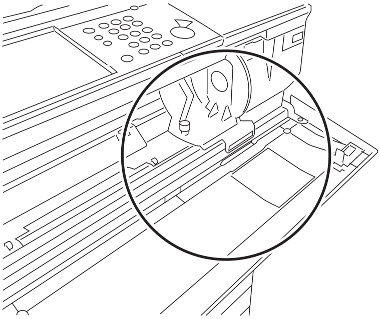
F-7-603

2) Shift down the lever [1], and detach the black toner bottle [2].



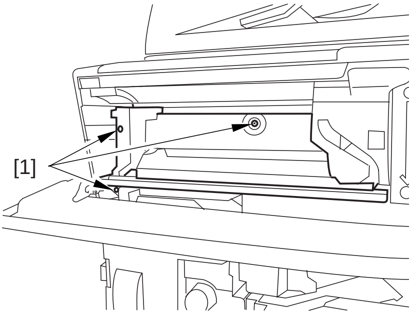
F-7-604

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



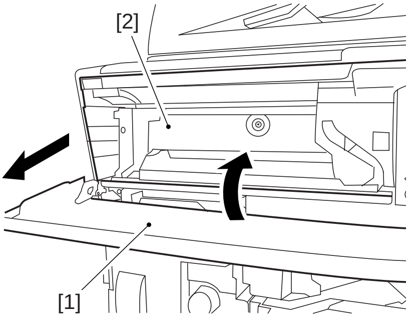
F-7-605

3) Remove the 3 screws [1].



F-7-606

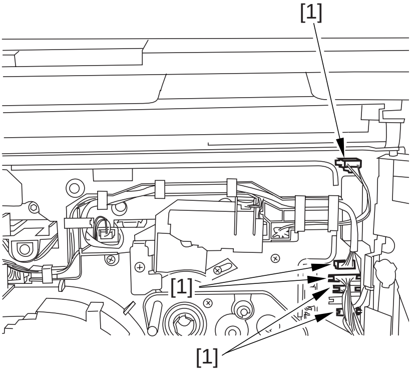
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-607

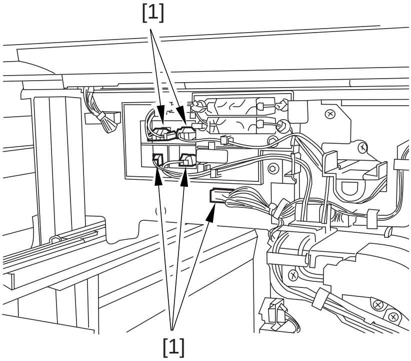
7.11.19.4 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



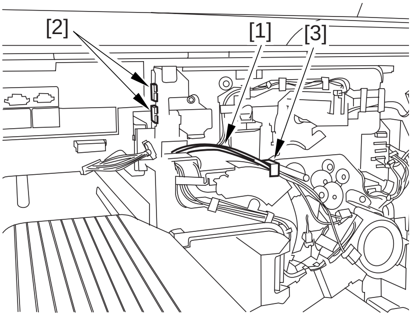
F-7-608

2) Disconnect the 5 connectors [1] found at the upper left.



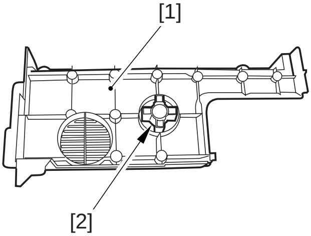
F-7-609

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-610

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

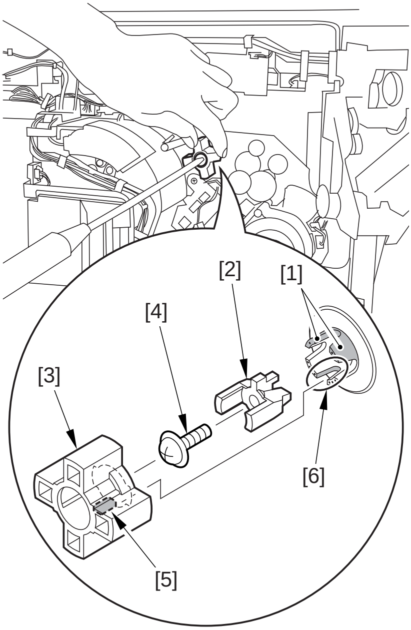


F-7-611

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

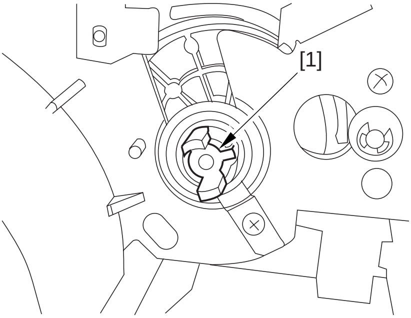
1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



F-7-612

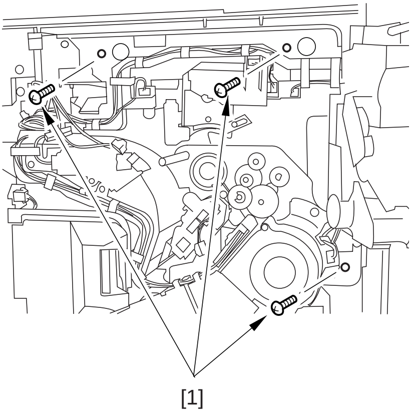
2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.
In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



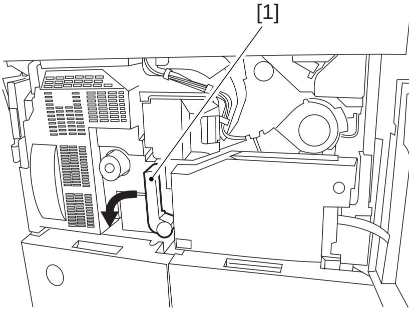
F-7-613

7) Remove the 3 binding screws (M4x8) [1].



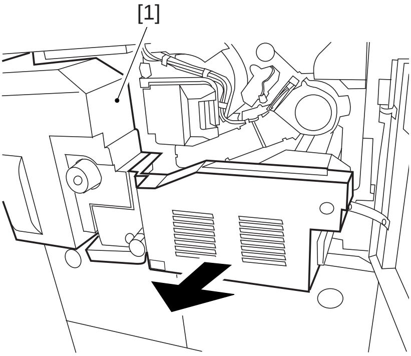
F-7-614

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



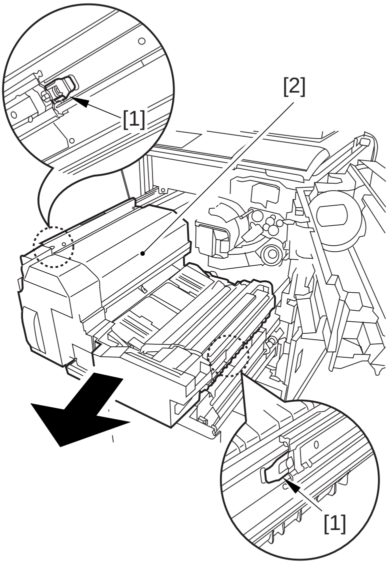
F-7-615

9) Slide out the fixing/feeding assembly [1] toward the front.



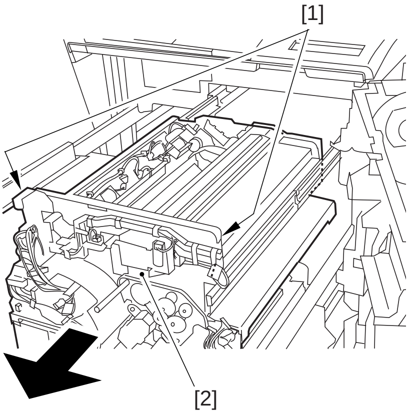
F-7-616

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-617

11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].

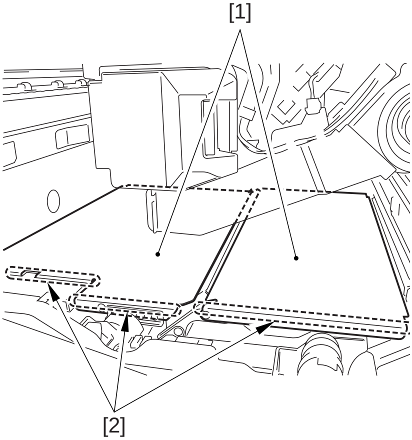


F-7-618

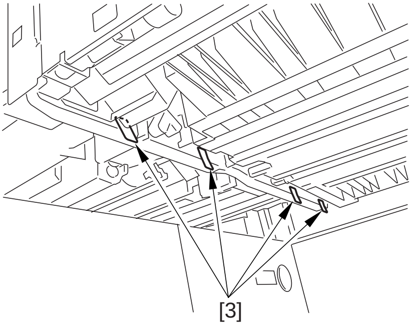
When you have slid out the process unit,

check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-619



F-7-620

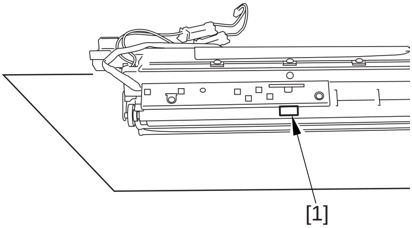
7.11.19.5 Removing the Black Developing Unit

⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore, not to damage the developing cylinder when you have detached the developing unit.

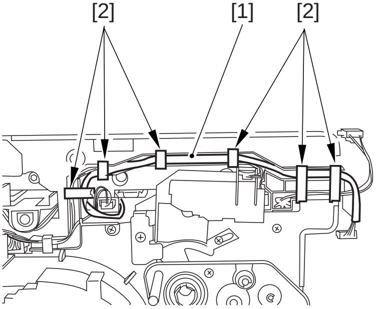
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



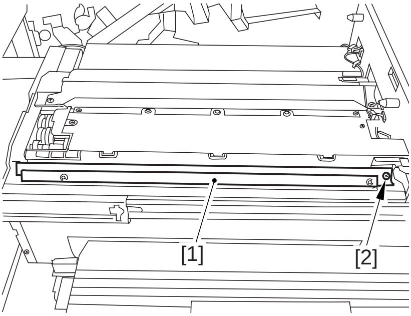
F-7-621

1) Open the harness guide used to fix the high-voltage cable [1] in place.



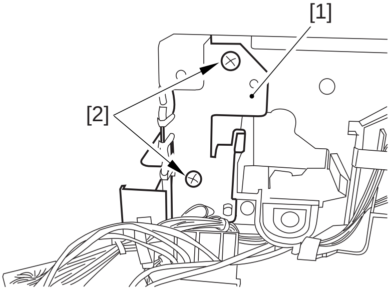
F-7-622

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



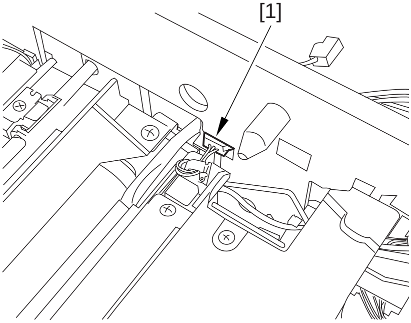
F-7-623

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



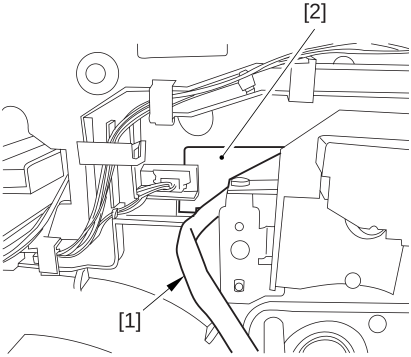
F-7-624

4) Disconnect the connector [1].



F-7-625

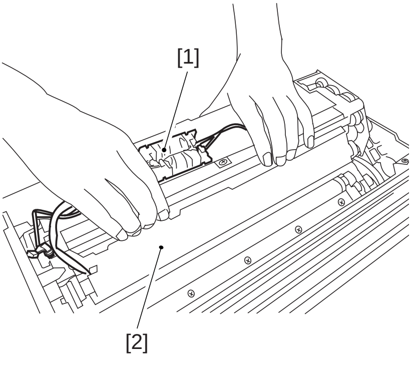
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-626

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

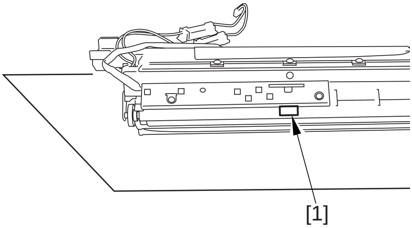
⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-627

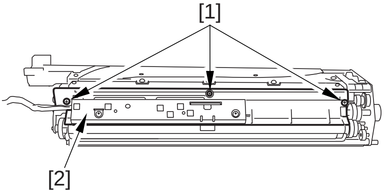
7.11.19.6 Removing the Black Developing Cylinder

⚠ When mounting the developing cylinder, take care not to touch the surface of the cylinder. Also, take full care not to damage the surface.
The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] shown in the figure. Also, take care not to drop or otherwise subject the black developing assembly to impact to avoid damage to the potential sensor.



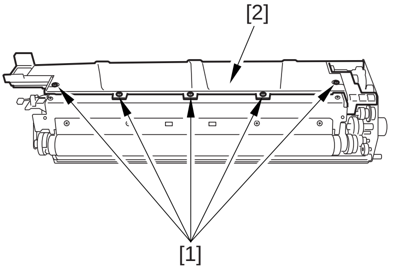
F-7-628

1) Remove the black developing assembly.
2) Remove the 3 screws [1], and detach the cylinder cover [2].



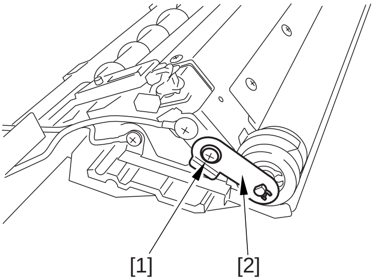
F-7-629

3) Remove the 5 screws [1], and detach the developing cartridge lid [2].



F-7-630

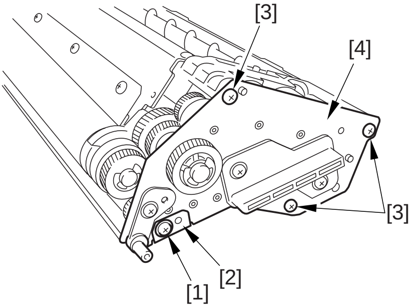
4) Remove the screw [1], and detach the magnetic positioning plate [2].



F-7-631

5) Remove the screw [1], and detach the lower guide plate [2].

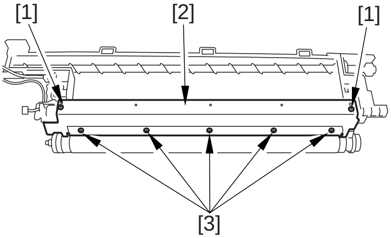
6) Remove the 3 screws [2], and pull out the gear box [4].



F-7-632

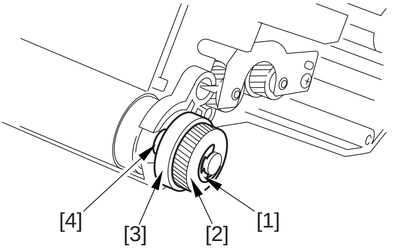
7) Remove the 2 screws [1], and detach the blade [2].

⚠ The blade is adjusted at the factory to an extremely high level of accuracy. Be sure not to loosen the screw [3] indicated in the figure in the field.



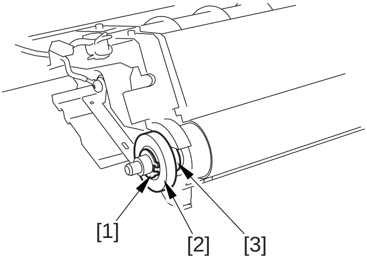
F-7-633

8) Remove the E-ring [1], gear [2], collar [3], and bearing [4] from the rear of the machine.



F-7-634

9) Remove the stop ring [1], collar [2], and bearing [3] from the front of the machine.



F-7-635

7.11.19.7 Points to Note When Handling the Black Developing Cylinder

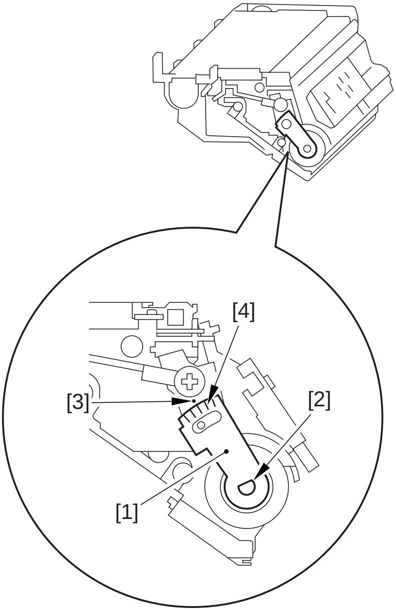
⚠ The black developing cylinder need not be cleaned on a periodical basis. If you must clean the surface of the cylinder, be sure to dry wipe it with lint-free paper, NEVER using water or solvent.

7.11.19.8 Points to Note When Mounting the Polarity Positioning Plate

Go through the following steps in strict sequence when mounting the polarity positioning plate:

1) Let go of your hand so that the developing cylinder moves and stops on its own.

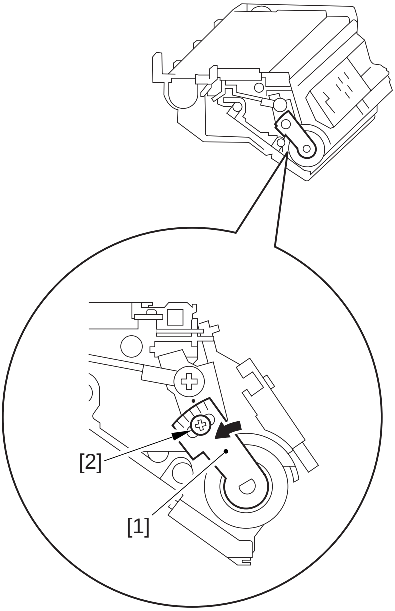
2) Shift the polarity positioning plate [1] counterclockwise as much as the length of the play of the D-cut notch [2]; then, read the index [4] of the marking found on the blade support base.



F-7-636

3) Turn the polarity positioning plate [1]

counterclockwise by a single index (5 deg); then, tighten the screw [2] to fix it in place.

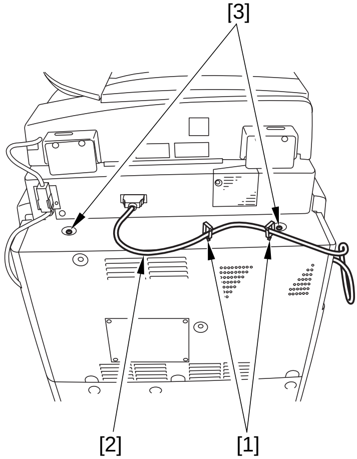


F-7-637

7.11.20 Black Developing Clutch

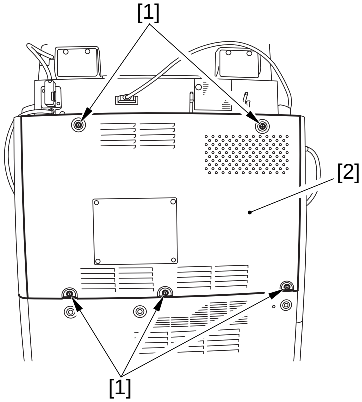
7.11.20.1 Remove the Rear Cover (upper)

1) Free the cable [2] from the 2 cable clamps [1].
2) Remove the 2 screws [3].



F-7-638

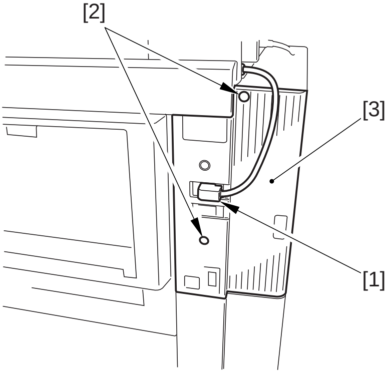
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-7-639

7.11.20.2 Removing the Right Cover (upper rear)

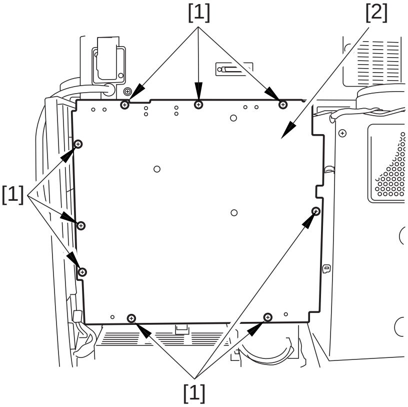
1) Detach the reader communications cable [1].
2) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



F-7-640

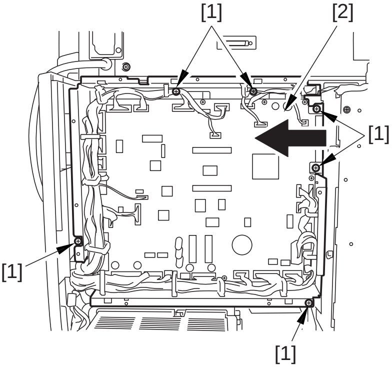
7.11.20.3 Sliding the DC Controller Box

1) Remove the 9 screws [1], and detach the DC controller cover [2].



F-7-641

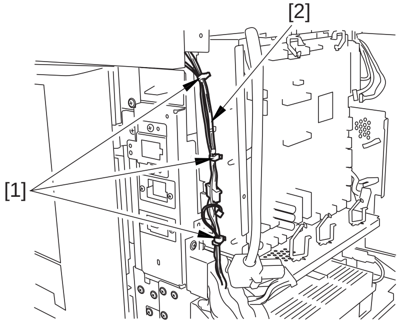
2) Remove the 6 screws [1], and slide the DC controller box [2] to the left.



F-7-642

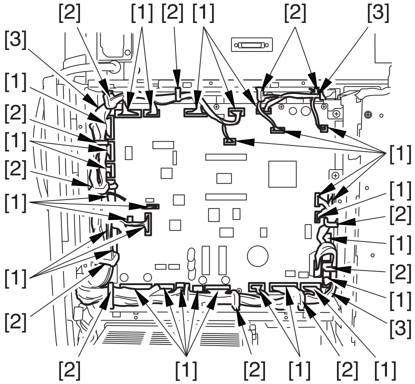
7.11.20.4 Removing the DC Controller Box

1) Open the 3 cable guides [1], and free the harness [2].



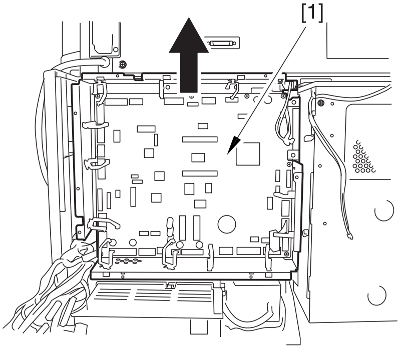
F-7-643

2) Disconnect the 33 connectors [1], and open that 13 cable guides [2]; then, free the harness [3].



F-7-644

3) Lift the DC controller box [1] to detach.

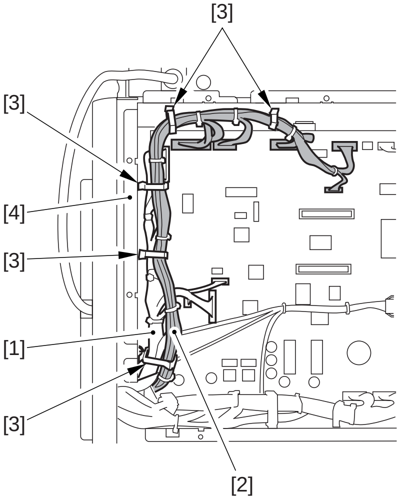


F-7-645

7.11.20.5 Points to Note When Mounting the DC Controller Box

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].
- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].

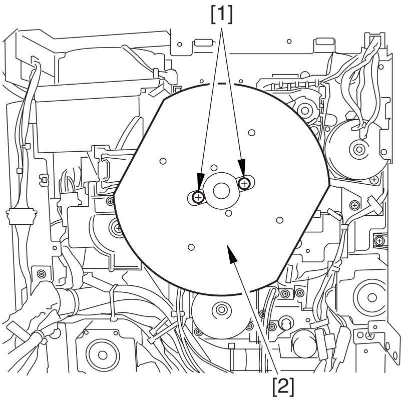


F-7-646

Supplementary Information:
If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

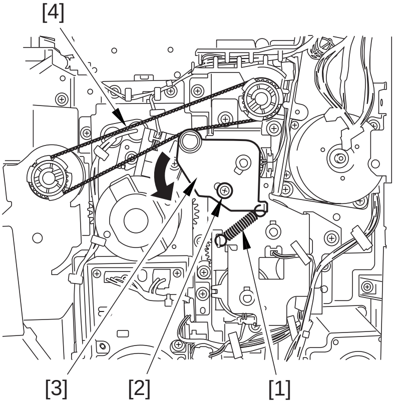
7.11.20.6 Removing the Black Developing Clutch

1) Remove the 2 screws [1], and detach the fly wheel [2].



F-7-647

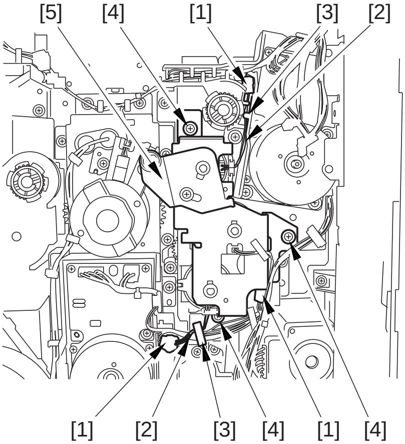
2) Remove the screw [1], and loosen the screw [2]; then, turn the tensioner [3] counterclockwise.
3) Detach the timing belt [4].



F-7-648

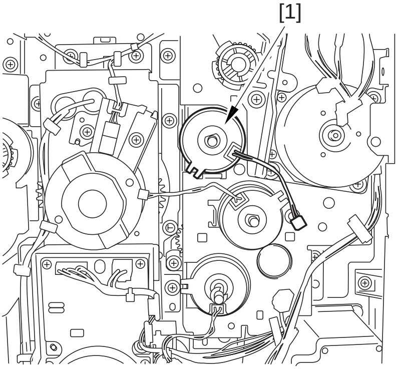
4) Disconnect the 3 connectors [1], and free the 3 harnesses [2] from the 6 cable guides [3].

5) Remove the 3 screws [4], and detach the side plate [5].



F-7-649

6) Remove the black developing cylinder [1].

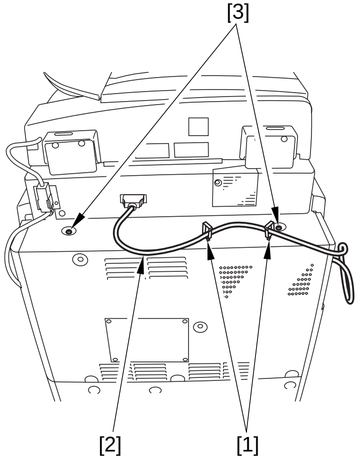


F-7-650

7.11.21 Color Toner Supply Clutch

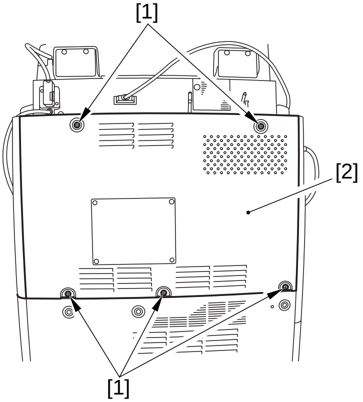
7.11.21.1 Removing the Rear Cover (upper)

1) Free the cable [2] from the 2 cable clamps [1].
2) Remove the 2 screws [3].



F-7-651

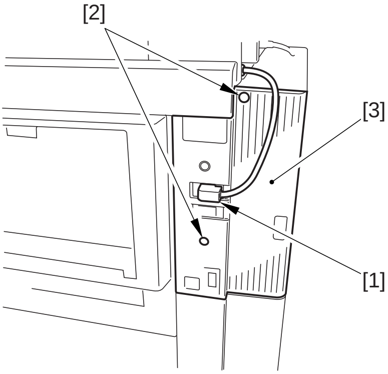
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-7-652

7.11.21.2 Removing the Right Cover (upper rear)

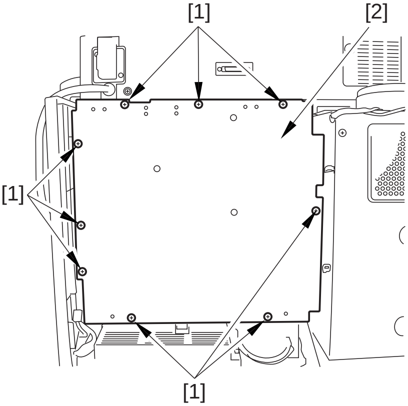
1) Detach the reader communications cable [1].
2) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



F-7-653

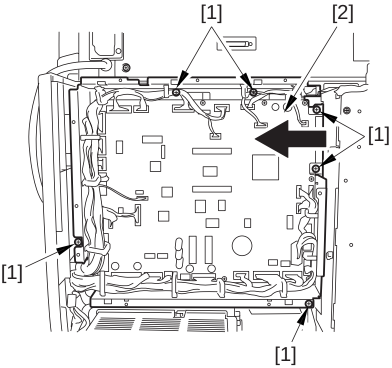
7.11.21.3 Sliding the DC Controller Box

1) Remove the 9 screws [1], and detach the DC controller cover [2].



F-7-654

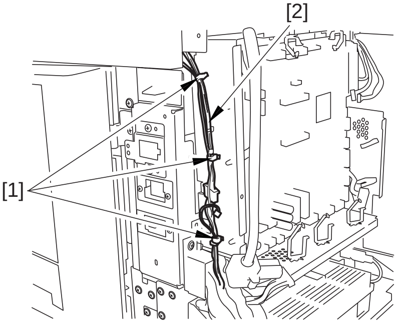
2) Remove the 6 screws [1], and slide the DC controller box [2] to the left.



F-7-655

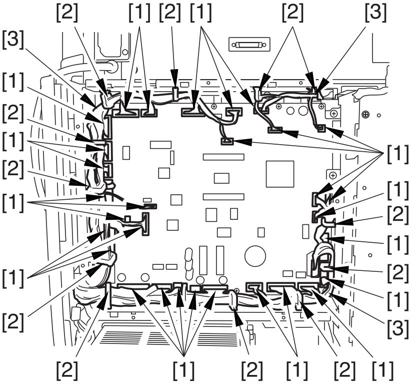
7.11.21.4 Removing the DC Controller Box

1) Open the 3 cable guides [1], and free the harness [2].



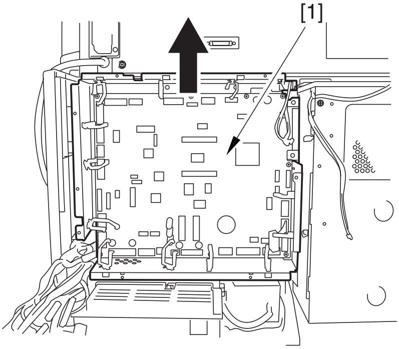
F-7-656

2) Disconnect the 33 connectors [1], and open that 13 cable guides [2]; then, free the harness [3].



F-7-657

3) Lift the DC controller box [1] to detach.

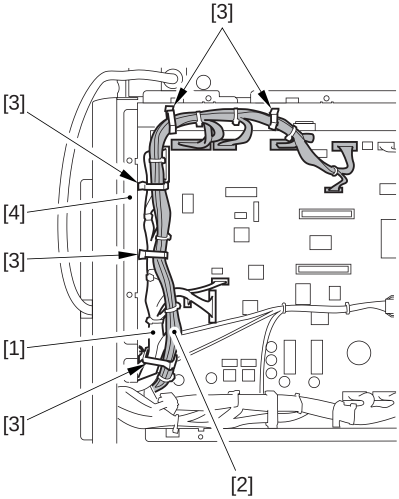


F-7-658

7.11.21.5 Points to Note When Mounting the DC Controller Box

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].
- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].

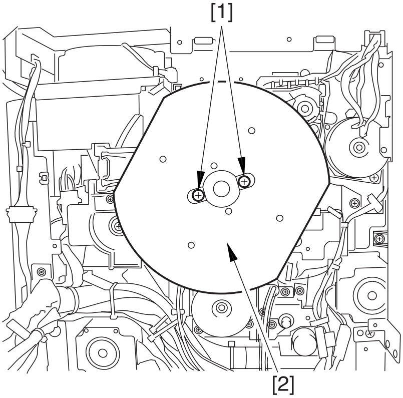


F-7-659

Supplementary Information:
If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

7.11.21.6 Removing the Color Toner Supply Clutch

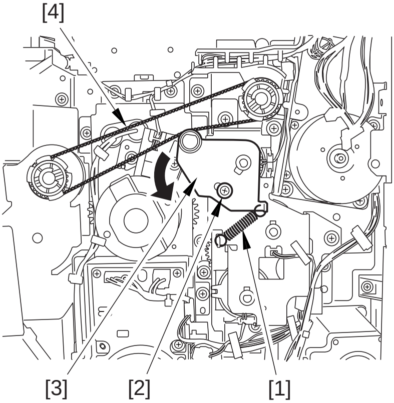
1) Remove the 2 screws [1], and detach the fly wheel [2].



F-7-660

2) Remove the spring [1], and loosen the screw [2]; then, turn the tensioner [3] clockwise.

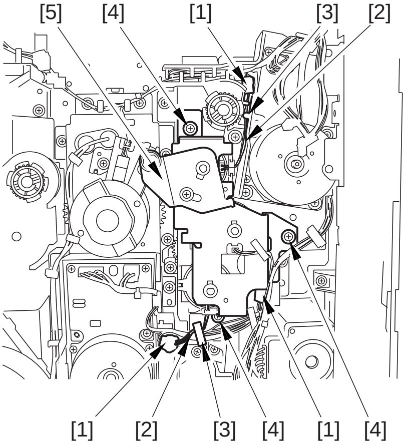
3) Detach the timing belt [4].



F-7-661

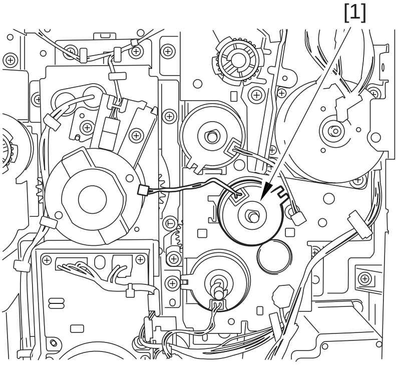
4) Disconnect the connector [1], and free the 3 harnesses [2] from the 6 cable guides [3].

5) Remove the 3 screws [4], and detach the side plate [5].



F-7-662

6) Remove the color toner supply clutch [1].



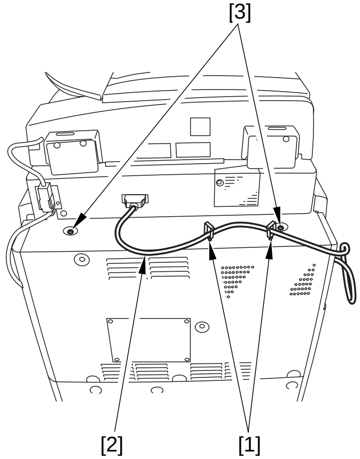
F-7-663

7.11.22 Color Developing Clutch

7.11.22.1 Removing the Rear Cover (upper)

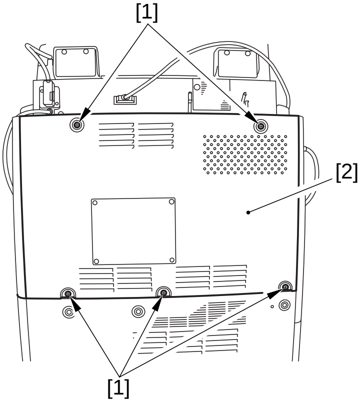
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-7-664

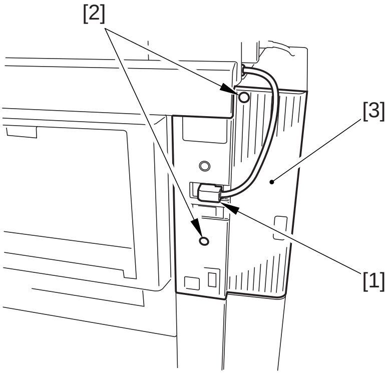
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-7-665

7.11.22.2 Removing the Right Cover (upper rear)

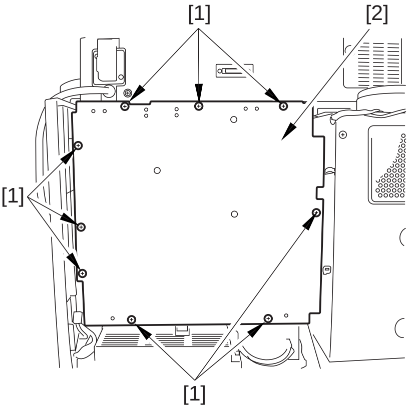
1) Detach the reader communications cable [1].
2) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



F-7-666

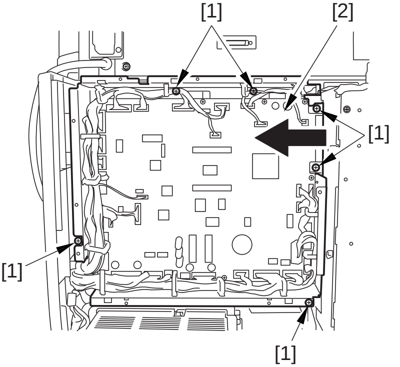
7.11.22.3 Sliding the DC Controller Box

1) Remove the 9 screws [1], and detach the DC controller cover [2].



F-7-667

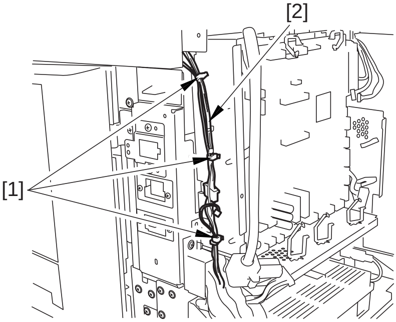
2) Remove the 6 screws [1], and slide the DC controller box [2] to the left.



F-7-668

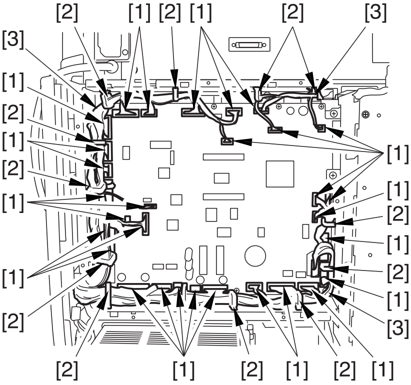
7.11.22.4 Removing the DC Controller Box

1) Open the 3 cable guides [1], and free the harness [2].



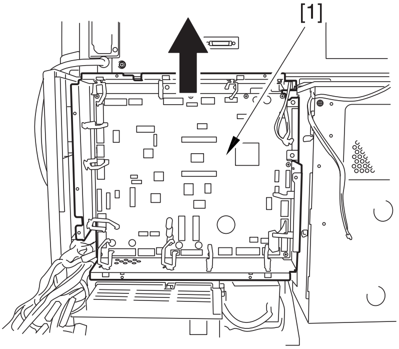
F-7-669

2) Disconnect the 33 connectors [1], and open that 13 cable guides [2]; then, free the harness [3].



F-7-670

3) Lift the DC controller box [1] to detach.

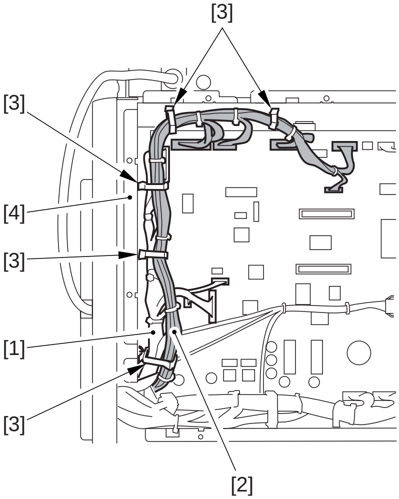


F-7-671

7.11.22.5 Points to Note When Mounting the DC Controller Box

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].
- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].



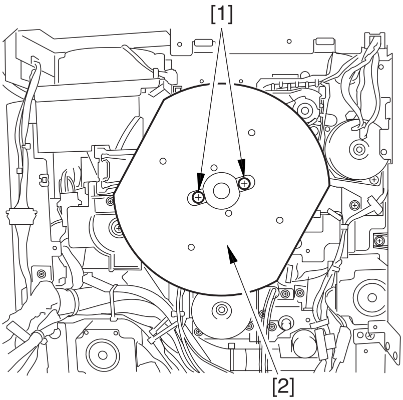
F-7-672

Supplementary Information:

If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

7.11.22.6 Removing the Color Developing Clutch

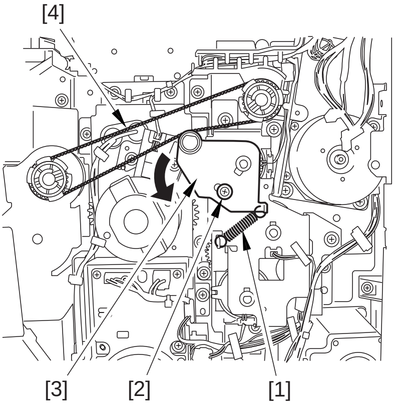
1 Remove the 2 screws [1], and detach the fly wheel [2].



F-7-673

2) Remove the spring [1], and loosen the screw [2]; then, turn the tensioner [3] clockwise.

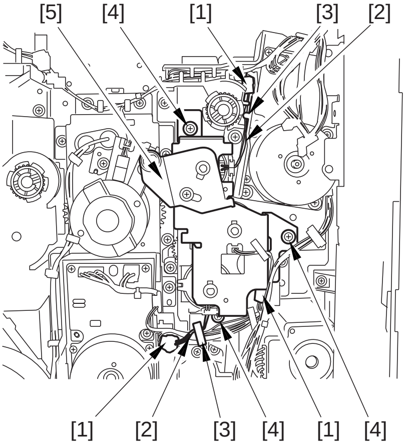
3) Detach the timing belt [4].



F-7-674

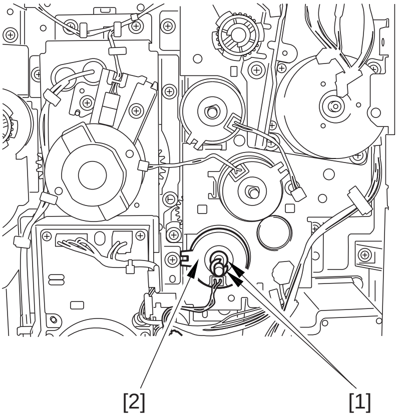
4) Disconnect the 3 connectors [1], and free the 3 harnesses [2] from the 6 cable guides [3].

5) Remove the 3 screws [4], and detach the side plate [5].



F-7-675

6) Remove the 2 E-rings [1], and detach the color developing clutch [2].

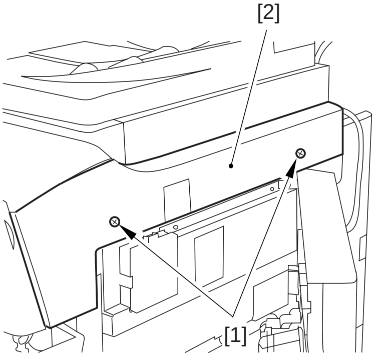


F-7-676

7.11.23 Cleaning Assembly Scoop-Up Sheet

7.11.23.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

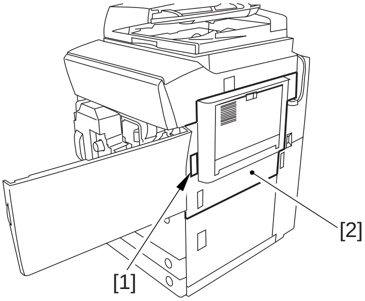


F-7-677

7.11.23.2 Releasing the Front Cover

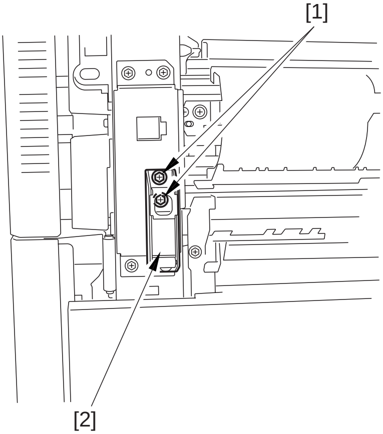
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-678

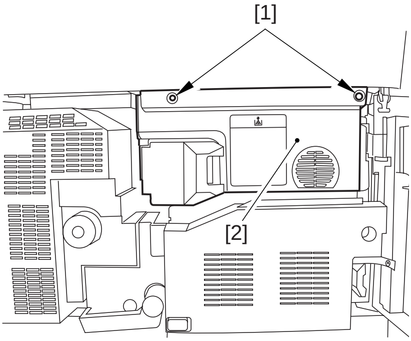
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-679

3) Slide out the fixing/feeding assembly

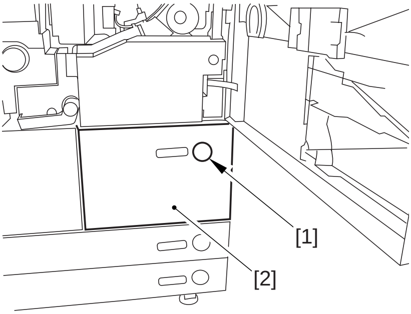
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-680

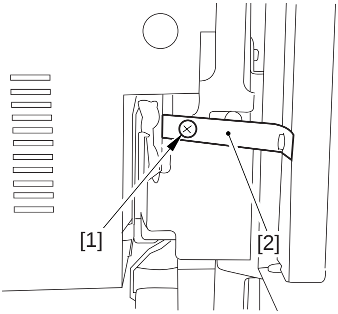
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



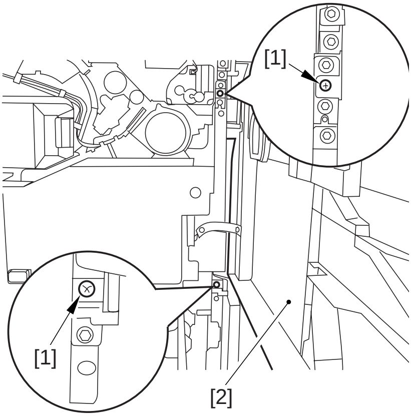
F-7-681

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-682

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

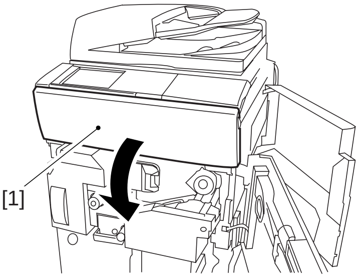


F-7-683

9) Close the right deck.

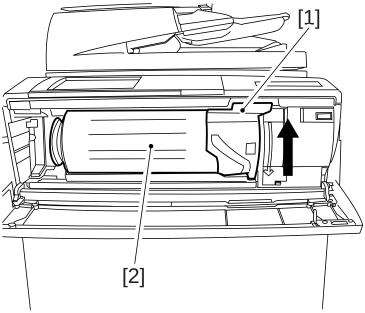
7.11.23.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



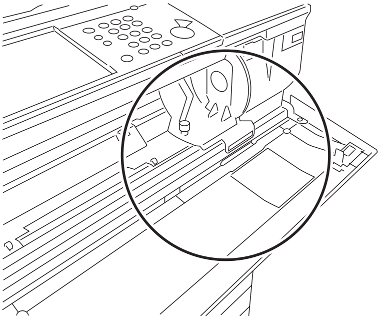
F-7-684

2) Shift down the lever [1], and detach the black toner bottle [2].



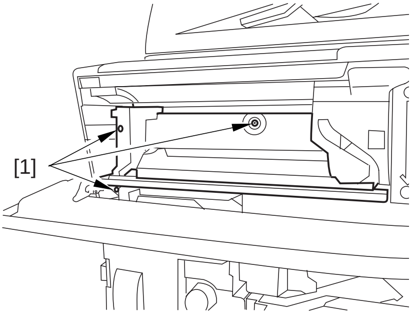
F-7-685

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



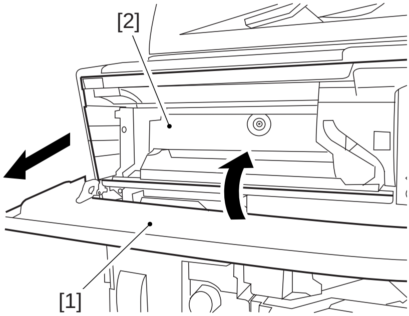
F-7-686

3) Remove the 3 screws [1].



F-7-687

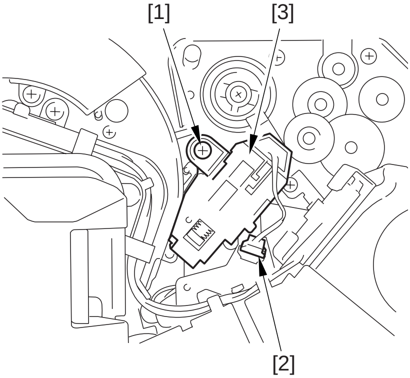
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-688

7.11.23.4 Removing the Pre-Transfer Charging Assembly

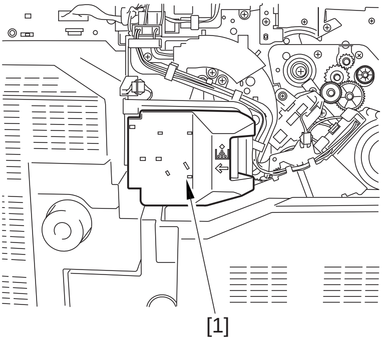
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-689

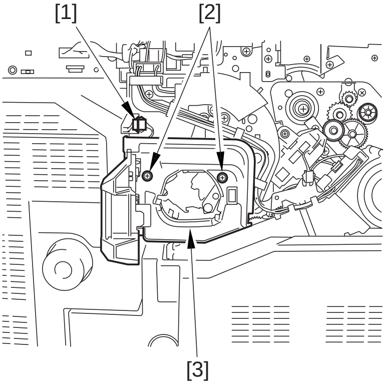
7.11.23.5 Removing the Transfer Cleaning Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-690

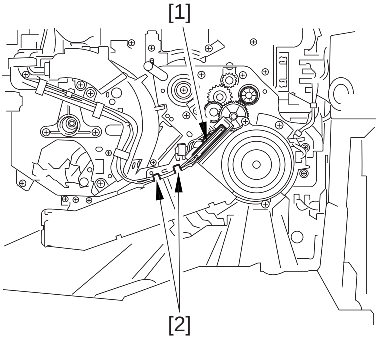
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-691

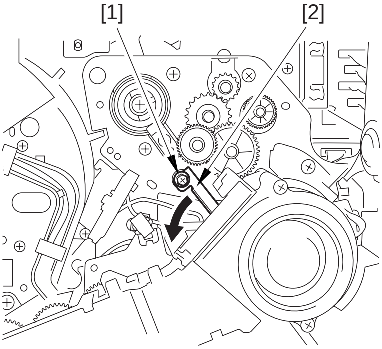
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



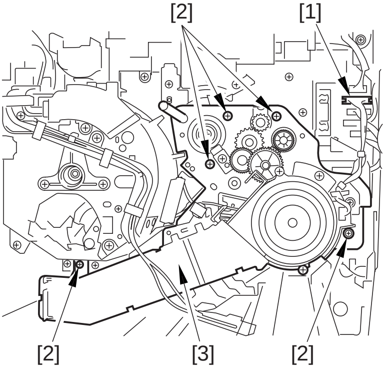
F-7-692

5) Remove the screw [1], and shift down the locking plate [2].



F-7-693

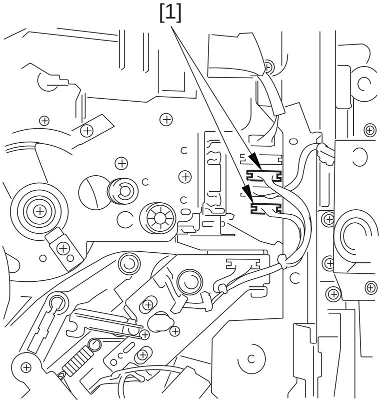
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-694

7.11.23.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

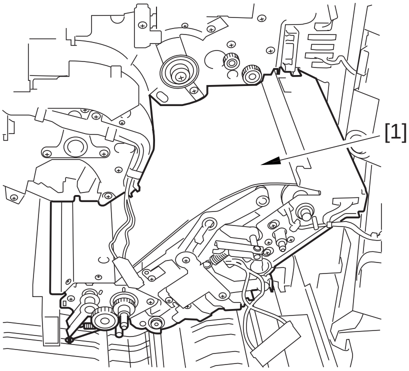


F-7-695

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

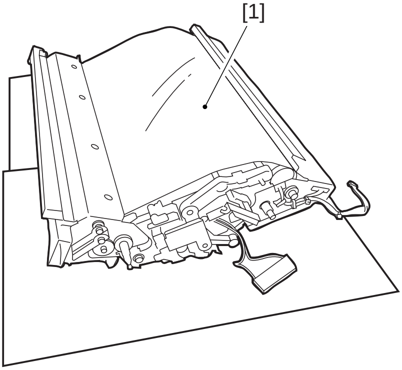
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-696

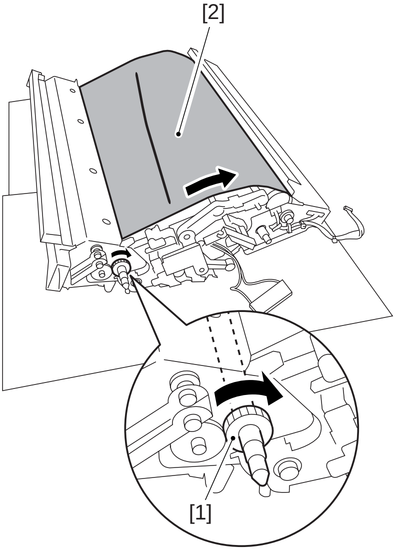
7.11.23.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



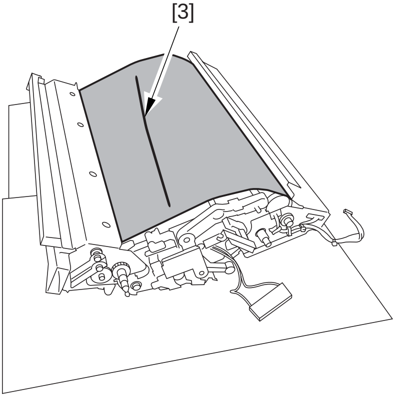
F-7-697

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



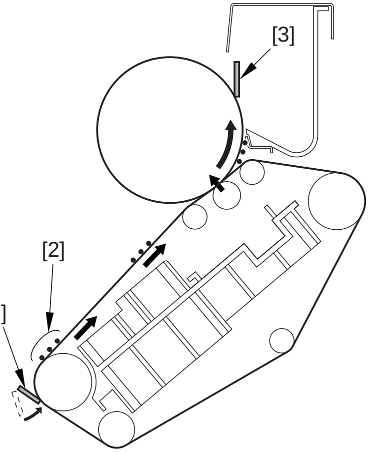
F-7-698

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-699

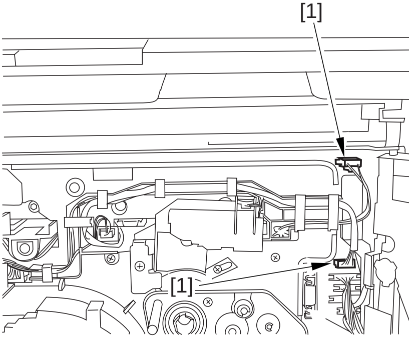
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-700

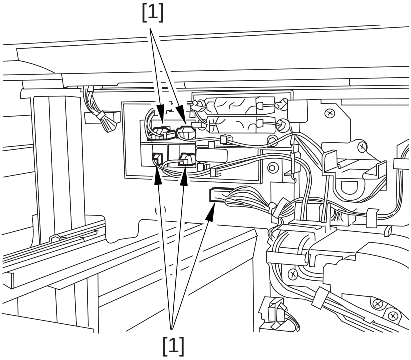
7.11.23.8 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



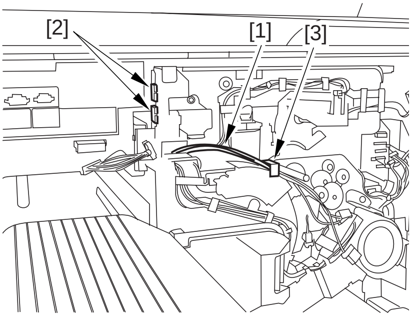
F-7-701

2) Disconnect the 5 connectors [1] found at the upper left.



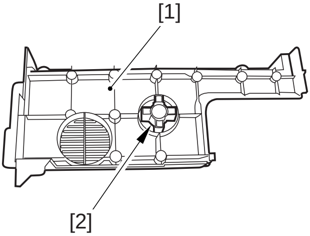
F-7-702

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-703

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

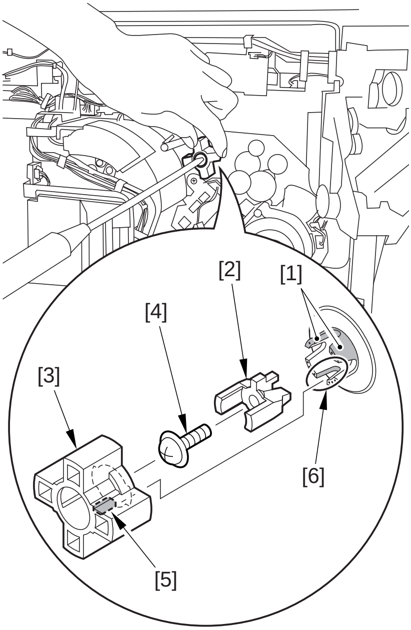


F-7-704

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



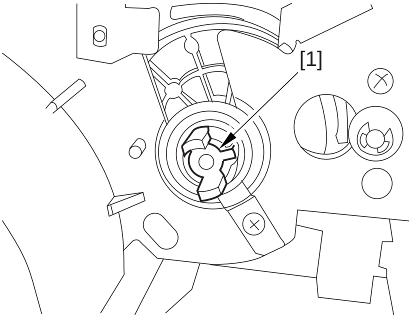
F-7-705

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

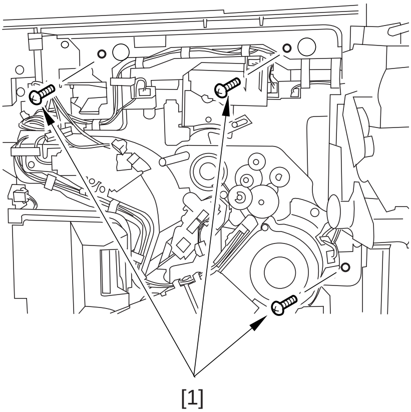
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



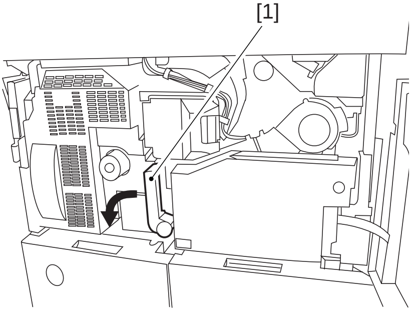
F-7-706

7) Remove the 3 binding screws (M4x8) [1].



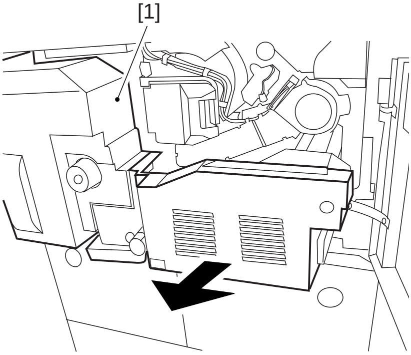
F-7-707

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



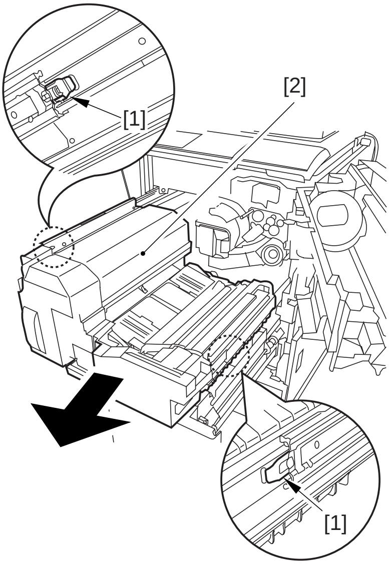
F-7-708

9) Slide out the fixing/feeding assembly [1] toward the front.



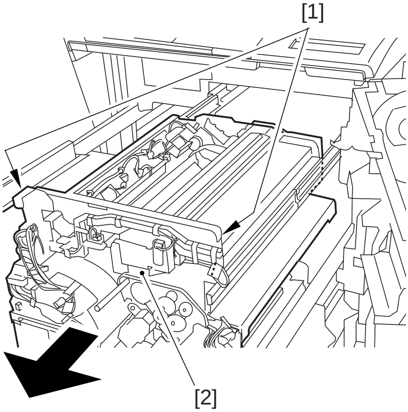
F-7-709

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-710

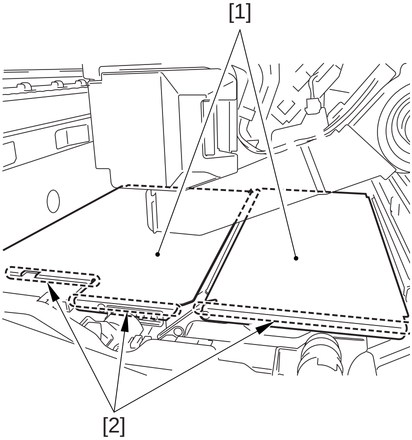
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



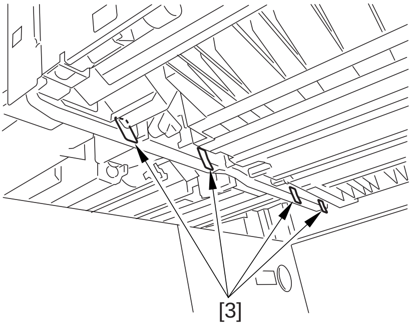
F-7-711

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



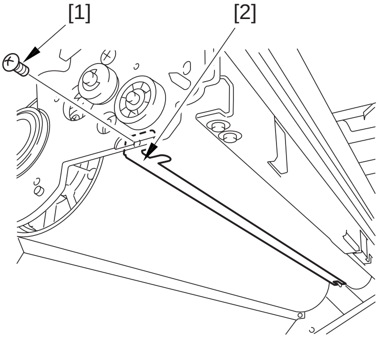
F-7-712



F-7-713

7.11.23.9 Removing the Photosensitive Drum Cleaning Scoop-Up Sheet

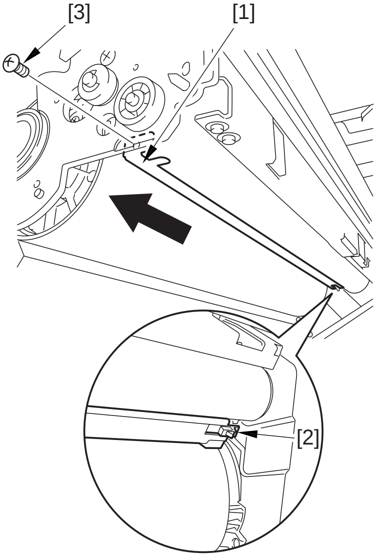
1) Remove the screw [1], and slide the photosensitive drum cleaning scoop-up sheet [2] toward the rear to detach.



F-7-714

7.11.23.10 Mounting the Photosensitive Drum Cleaner Scoop-Up Sheet

1) Engage the hole found at the rear of the photosensitive drum scoop-up sheet [1] on the hook [2]: then, pull it toward the front and fix in place with a screw [3].
During the work, be sure that the tip of the scoop-up sheet is not bent between the cartridge and the photosensitive drum.



F-7-715

⚠ Making Checks After Mounting the Photosensitive Drum Scoop-Up Sheet

1. Be sure that the scoop-up sheet is not bent or broken from below.
2. Be sure that the photosensitive drum is rotated counterclockwise, NOT clockwise; failure to observe this will lead to bending or deformation of the scoop-up sheet.

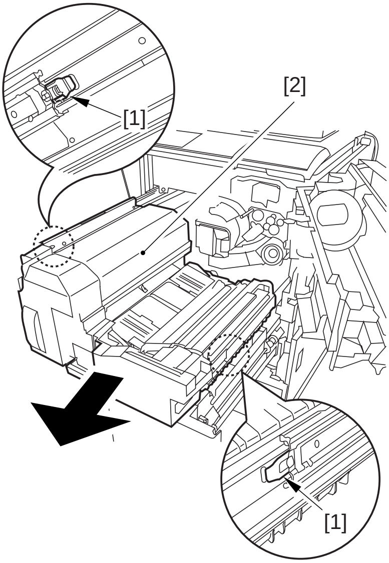
7.11.24 Secondary Transfer Unit

7.11.24.1 Removing the Secondary Transfer Unit

1) Open the front cover.

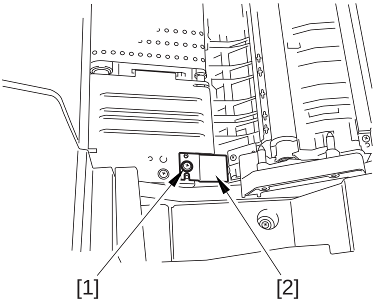
2) Slide out the fixing/feeding assembly.

3) While pushing the 2 hooks [1] frond on both sides of the fixing/feeding assembly, slide out the fixing/feeding assembly [2] fully.



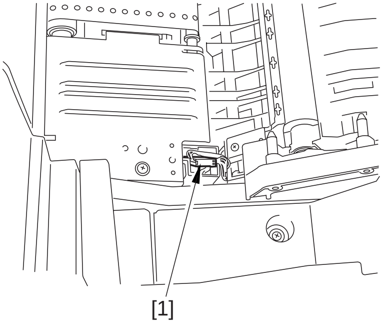
F-7-716

4) Remove the screw [1], and detach the connector cover [2].



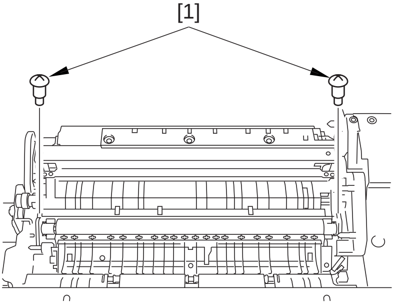
F-7-717

5) Disconnect the connector [1].



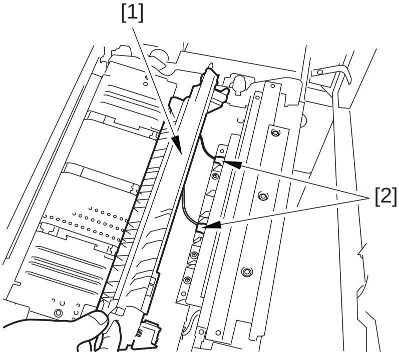
F-7-718

6) Remove the 2 stepped screws [1].



F-7-719

7) While shifting the secondary transfer unit [1], disconnect the 2 connectors [2]; then, detach the secondary transfer unit.

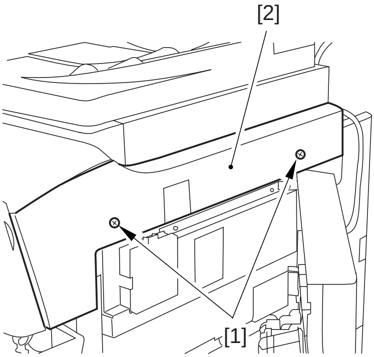


F-7-720

7.11.25 ITB Cleaning Unit

7.11.25.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

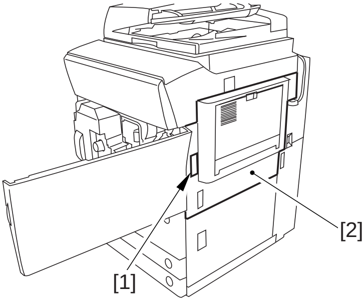


F-7-721

7.11.25.2 Releasing the Front Cover

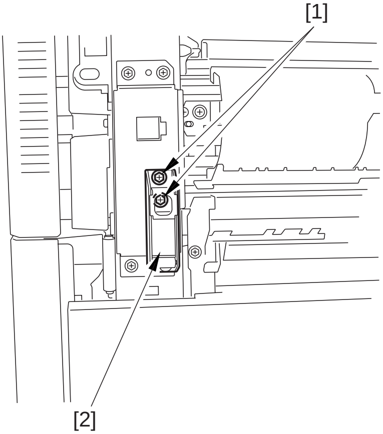
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-722

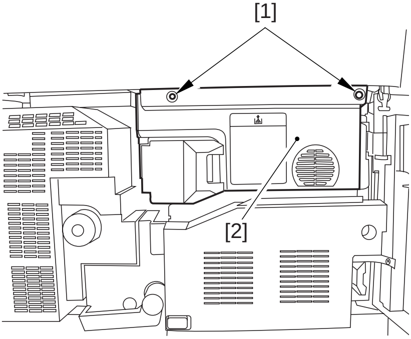
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-723

3) Slide out the fixing/feeding assembly

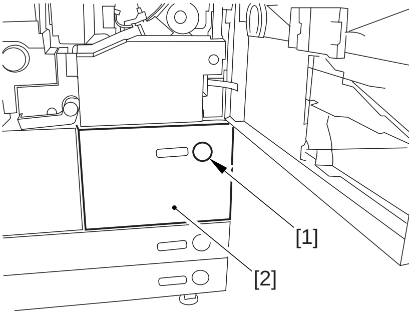
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-724

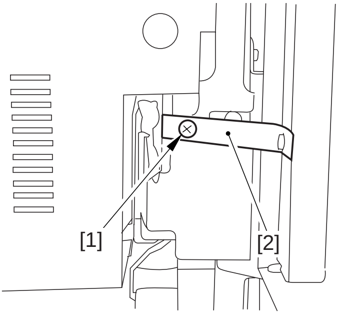
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



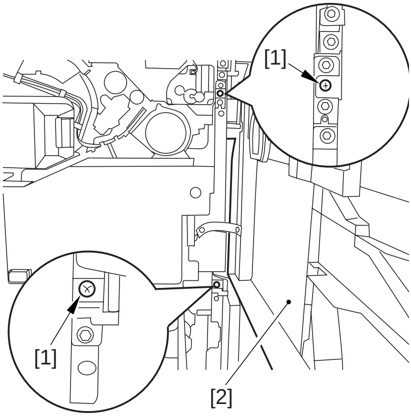
F-7-725

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-726

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

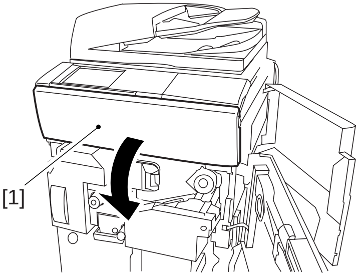


F-7-727

9) Close the right deck.

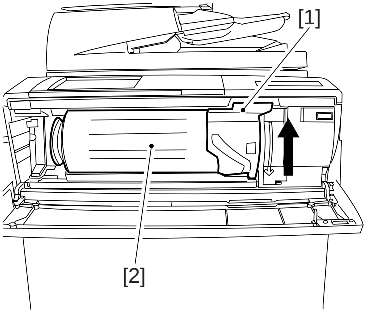
7.11.25.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



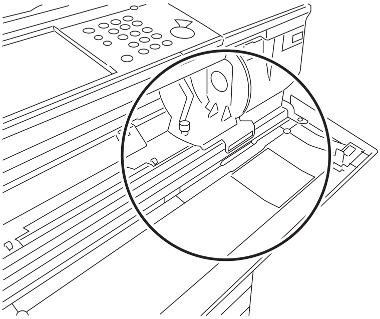
F-7-728

2) Shift down the lever [1], and detach the black toner bottle [2].



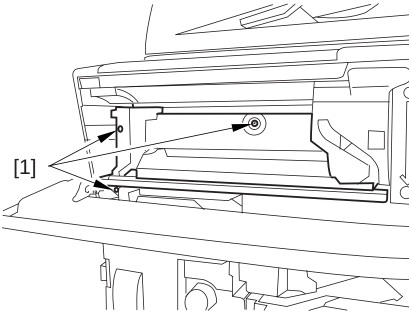
F-7-729

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



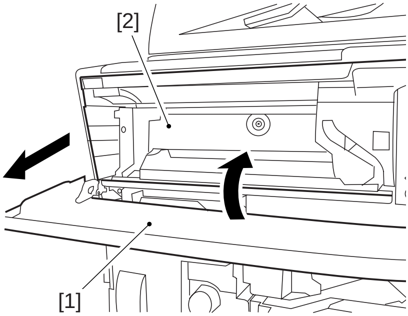
F-7-730

3) Remove the 3 screws [1].



F-7-731

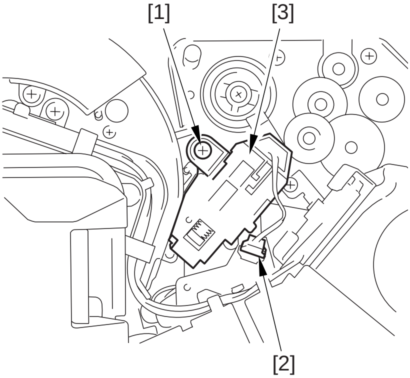
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-732

7.11.25.4 Removing the Pre-Transfer Charging Assembly

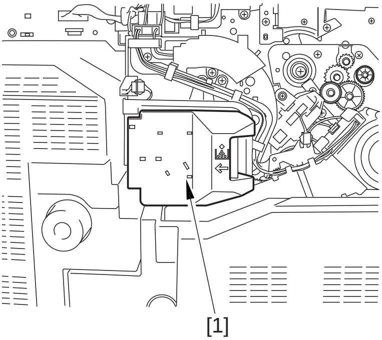
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-733

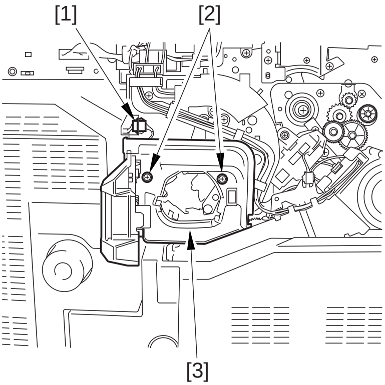
7.11.25.5 Removing the Transfer Cleaning Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-734

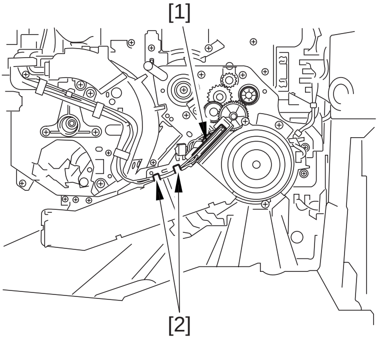
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-735

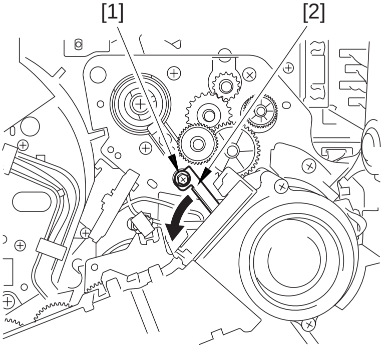
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



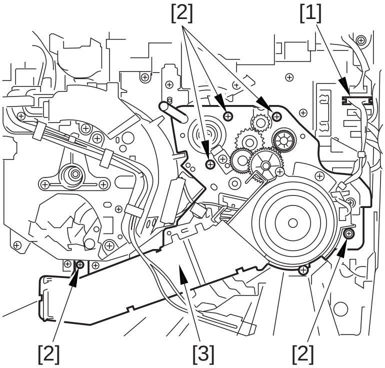
F-7-736

5) Remove the screw [1], and shift down the locking plate [2].



F-7-737

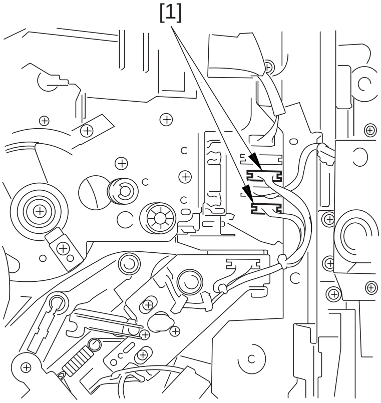
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-738

7.11.25.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].



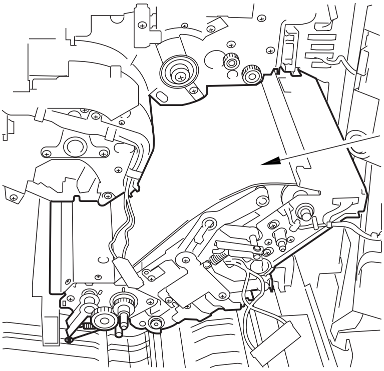
F-7-739

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer

assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

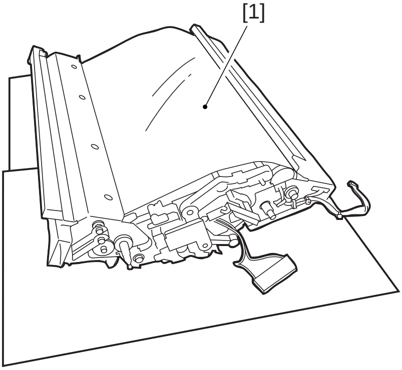
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



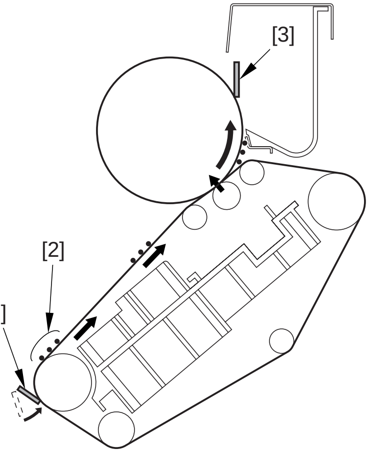
F-7-740

7.11.25.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



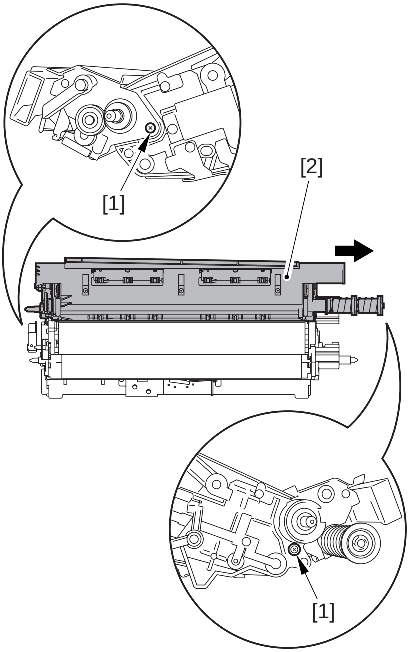
F-7-741



F-7-742

7.11.25.8 Removing the ITB Cleaning Unit

1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.

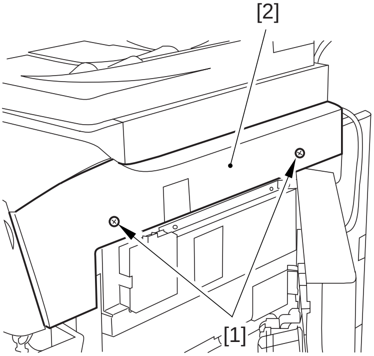


F-7-743

7.11.26 ITB Cleaner End Scraper

7.11.26.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

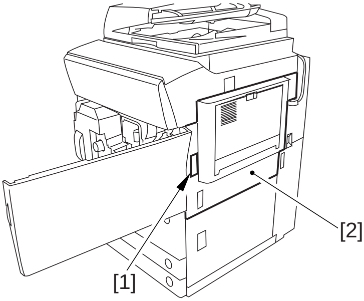


F-7-744

7.11.26.2 Releasing the Front Cover

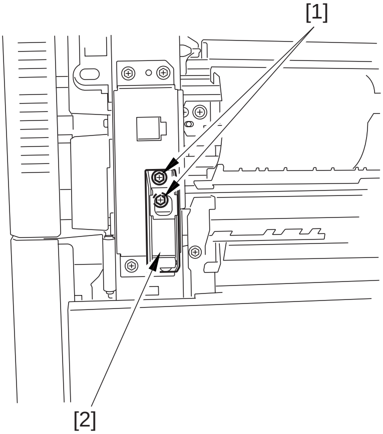
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-745

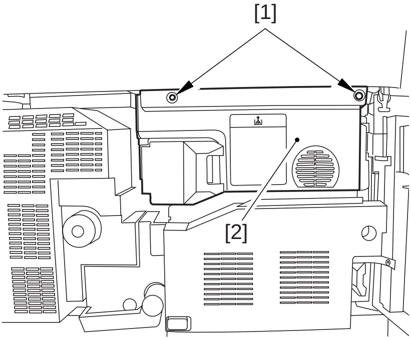
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-746

3) Slide out the fixing/feeding assembly

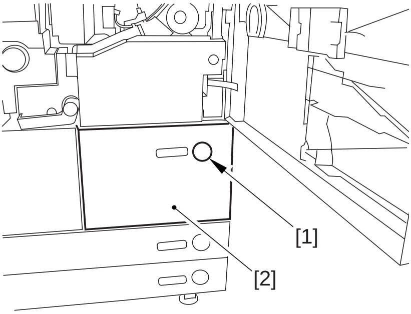
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-747

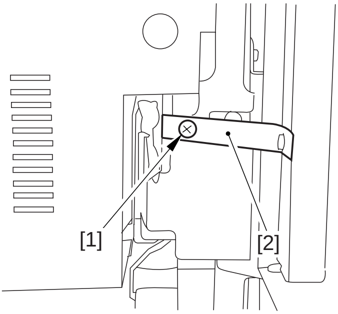
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



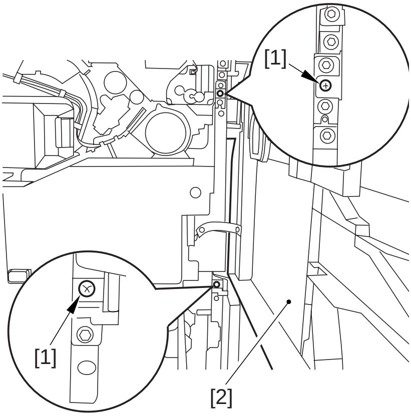
F-7-748

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-749

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

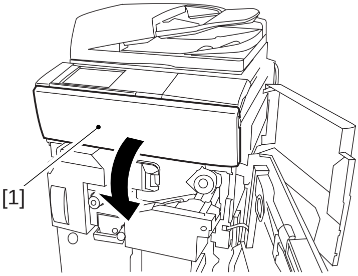


F-7-750

9) Close the right deck.

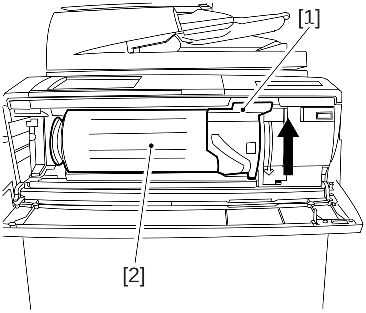
7.11.26.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



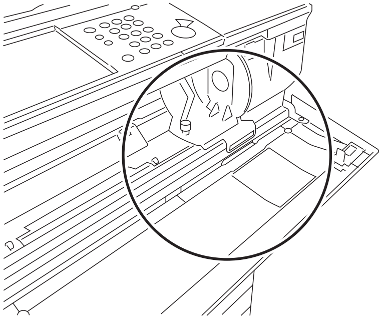
F-7-751

2) Shift down the lever [1], and detach the black toner bottle [2].



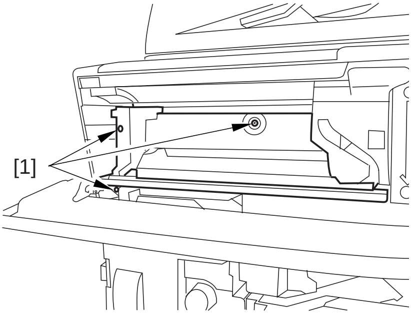
F-7-752

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



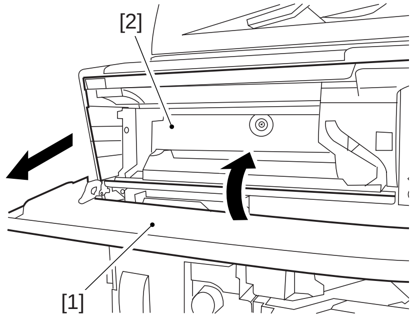
F-7-753

3) Remove the 3 screws [1].



F-7-754

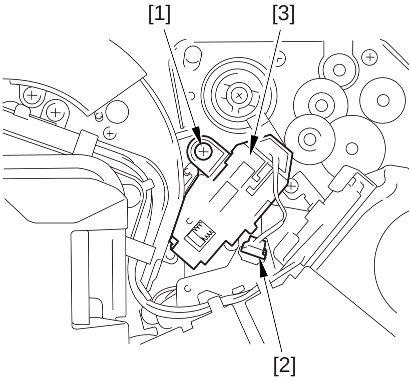
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-755

7.11.26.4 Removing the Pre-Transfer Charging Assembly

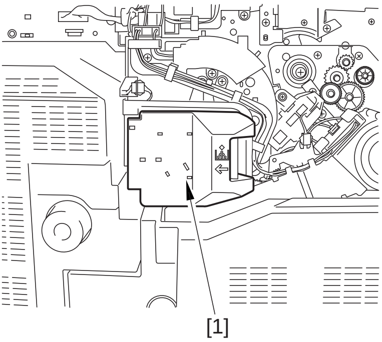
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-756

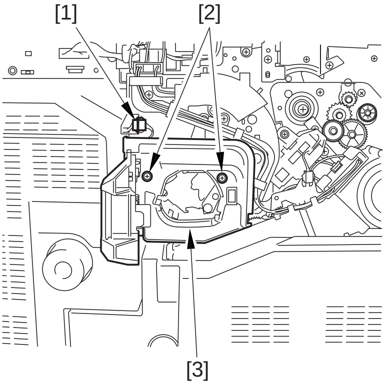
7.11.26.5 Removing the Transfer Cleaning Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-757

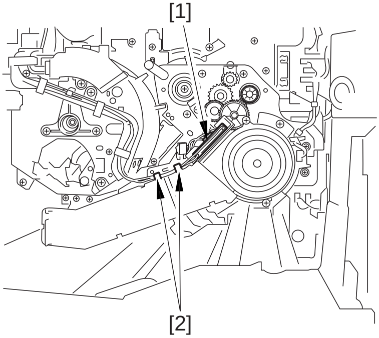
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-758

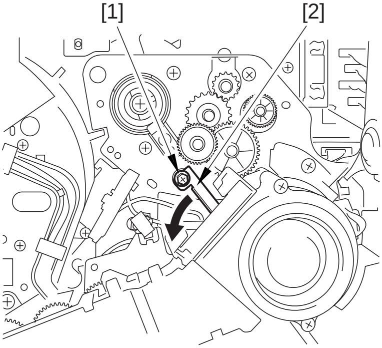
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



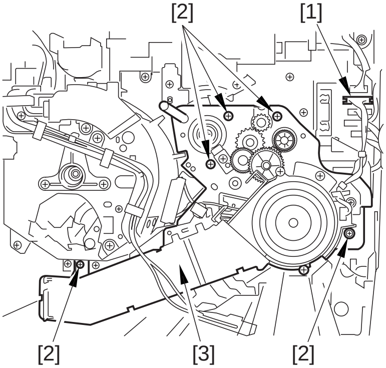
F-7-759

5) Remove the screw [1], and shift down the locking plate [2].



F-7-760

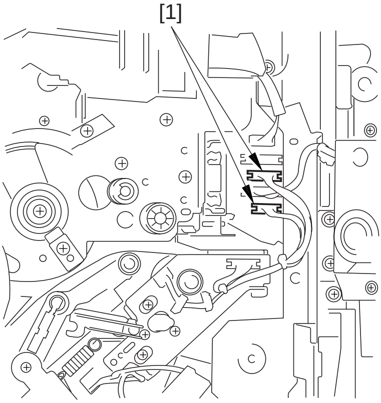
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-761

7.11.26.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

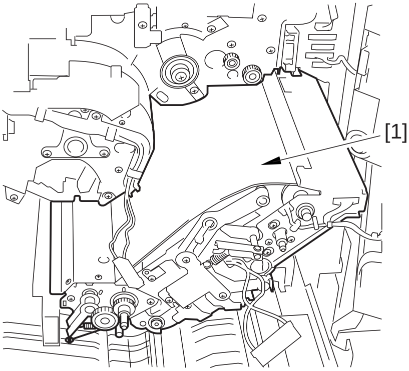


F-7-762

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

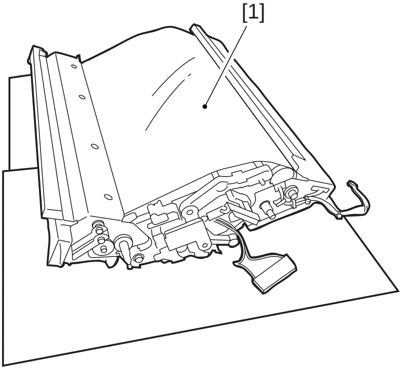
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-763

7.11.26.7 Cleaning the Surface of the Intermediate Transfer Unit

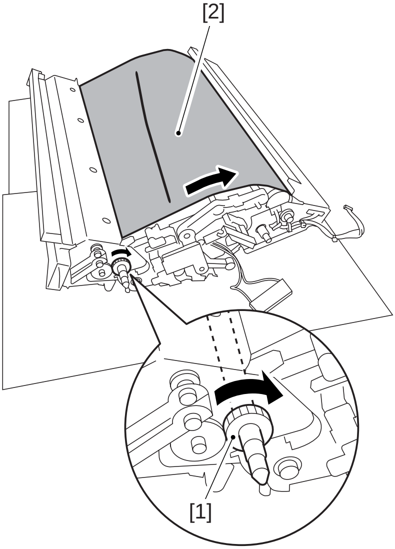
1) Place the ITB unit [1] on paper for protection.



F-7-764

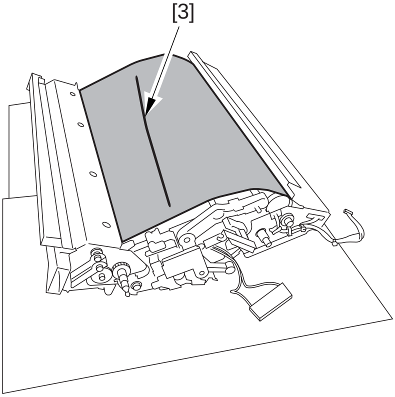
2) Turn the drive gear [1] by hand in the direction of the arrow to move the

intermediate transfer belt [2] about 50 mm.



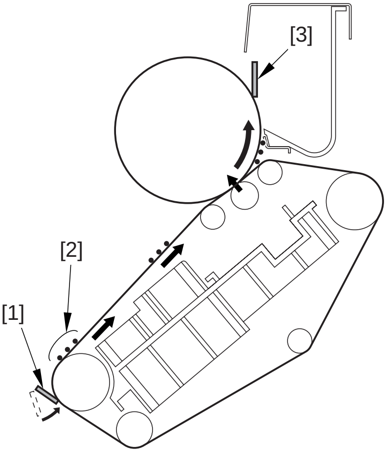
F-7-765

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-766

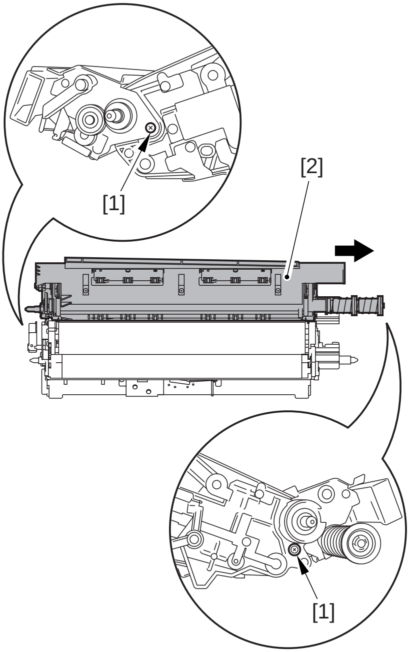
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-767

7.11.26.8 Removing the ITB Cleaning Unit

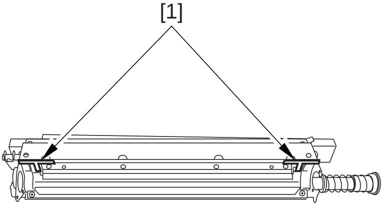
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-768

7.11.26.9 Removing the ITB Cleaner End Scraper

1) Detach the 2 end scrapers [1] by peeling off the 2 strips of double-sided tape.



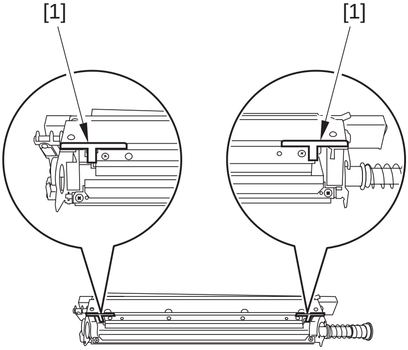
F-7-769

⚠Points to Note When Mounting the End Scraper

Clean the area from where you have detached the end scraper with alcohol so that adhesive from the double-sided tape will not remain.

7.11.26.10 Mounting the ITB Cleaner End Scraper

Peel the 2 strips of double-sided tape from the end scraper [1]; then, attach the 2 end scrapers [1] by aligning their edges against the ends of the ITB cleaner plate.



F-7-770

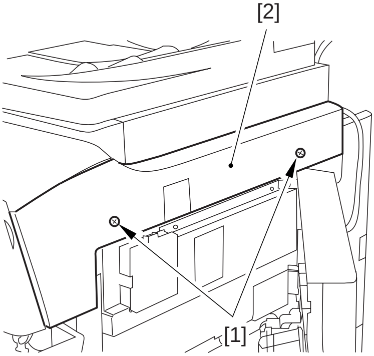
⚠Points to Note When Mounting the End Scraper

Before starting the work, be sure to clean the area with alcohol so that no adhesive will remain.

7.11.27 Intermediate Transfer Unit

7.11.27.1 Removing the Right Cover (upper)

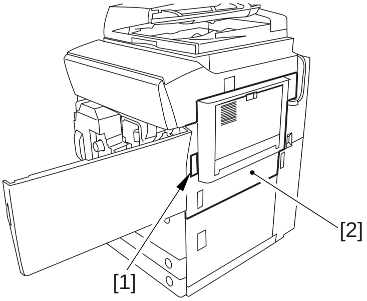
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-771

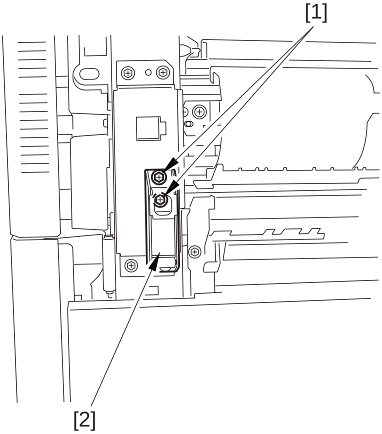
7.11.27.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



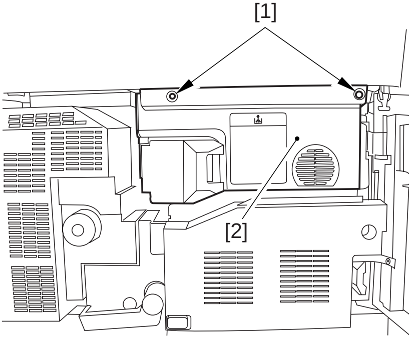
F-7-772

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-773

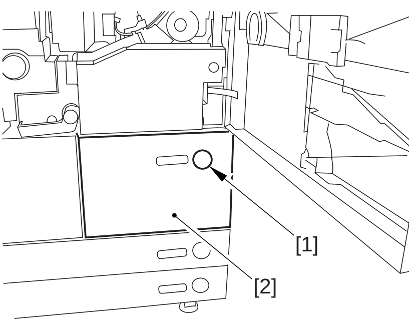
3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-774

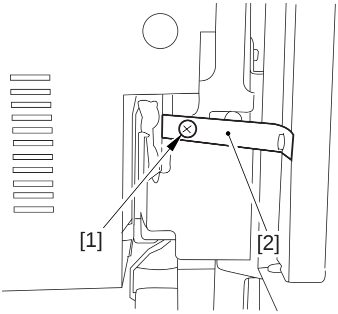
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



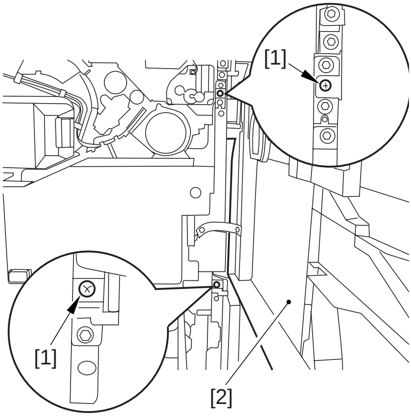
F-7-775

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-776

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

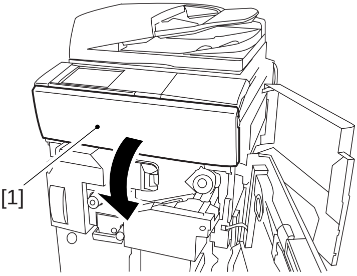


F-7-777

9) Close the right deck.

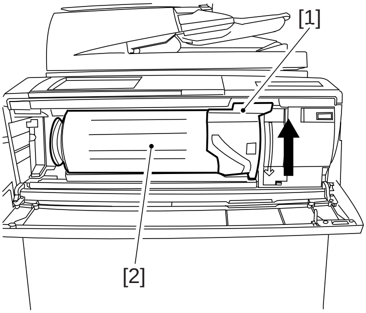
7.11.27.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



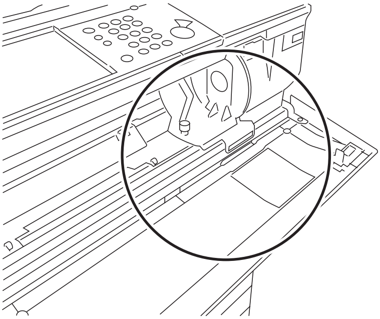
F-7-778

2) Shift down the lever [1], and detach the black toner bottle [2].



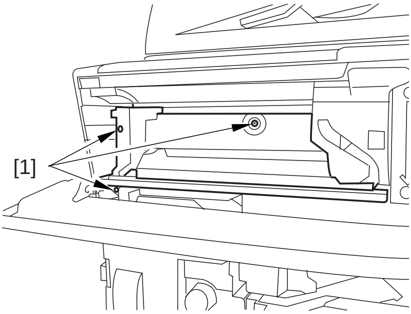
F-7-779

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



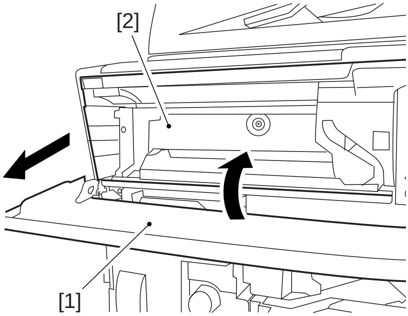
F-7-780

3) Remove the 3 screws [1].



F-7-781

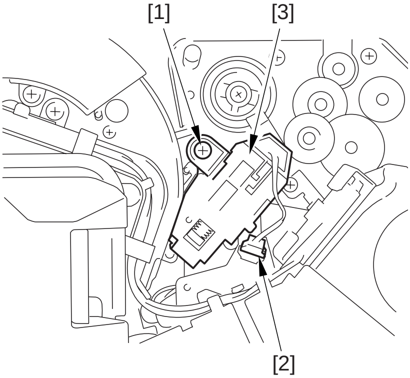
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-782

7.11.27.4 Removing the Pre-Transfer Charging Assembly

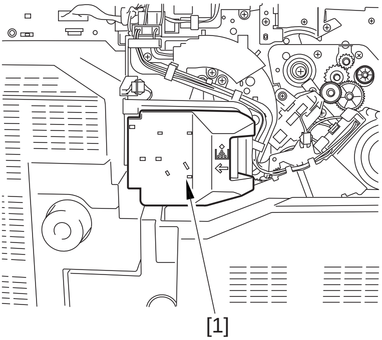
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-783

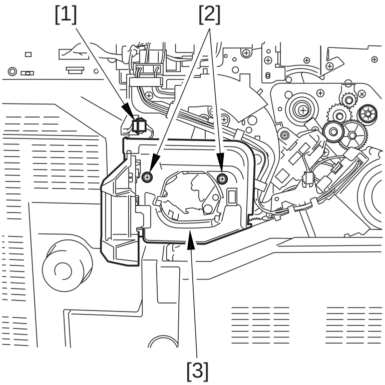
7.11.27.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-784

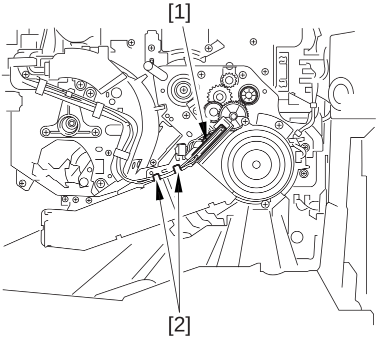
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-785

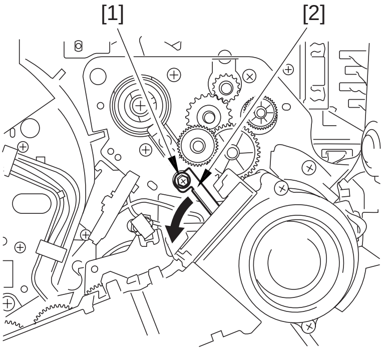
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



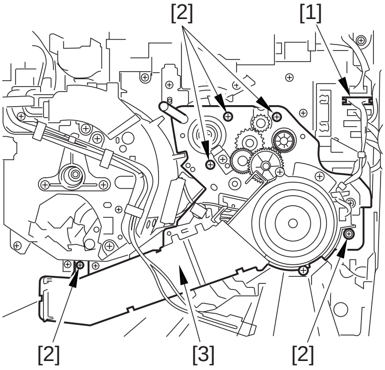
F-7-786

5) Remove the screw [1], and shift down the locking plate [2].



F-7-787

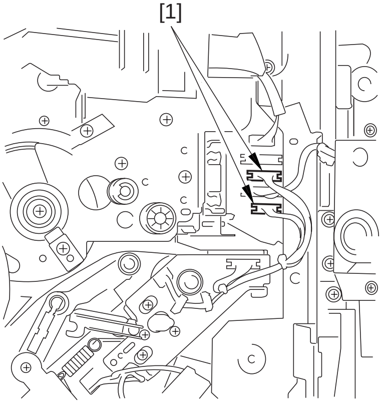
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-788

7.11.27.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].



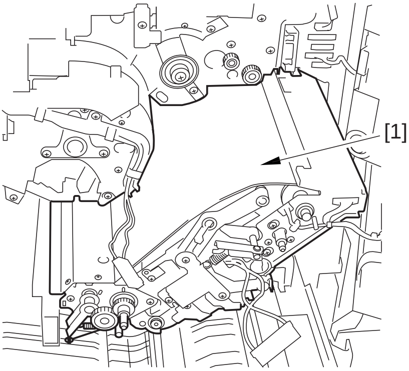
F-7-789

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer

assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

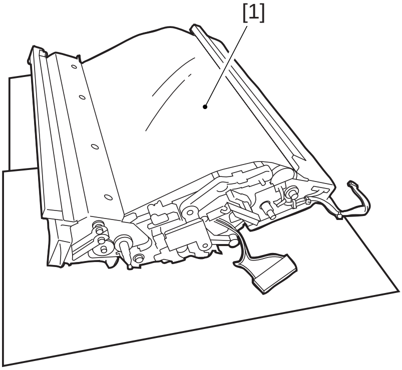
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-790

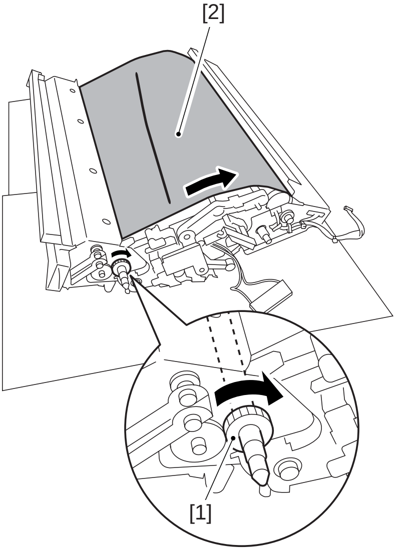
7.11.27.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



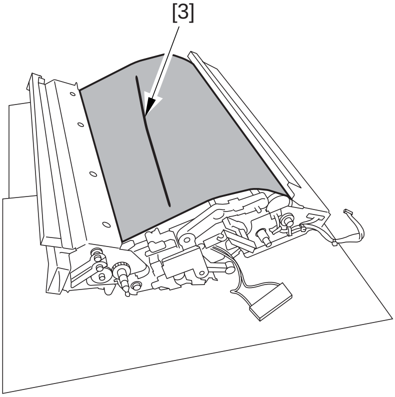
F-7-791

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



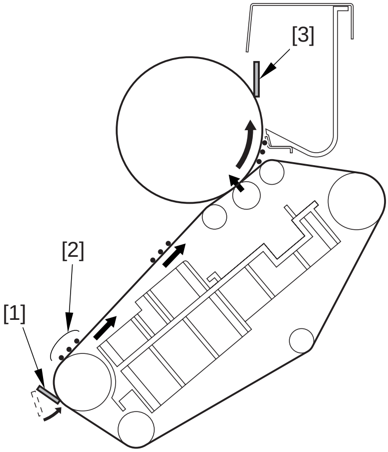
F-7-792

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-793

⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-794

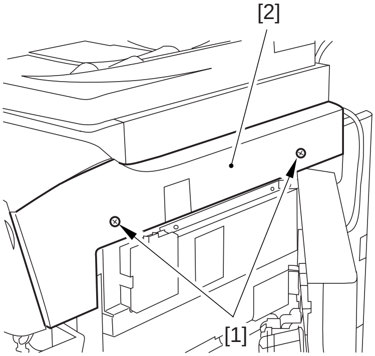
7.11.27.8 Points to Note When Replacing the Intermediate Transfer Unit

1. When replacing the intermediate transfer unit, be sure to hold it by both its ends (10 mm from either edge), avoiding its imaging area.
If its image area is soiled, be sure to clean the area using lint-free paper coated with a small amount of black toner.
2. Be sure to keep a clean sheet of print paper under the intermediate transfer unit during the work.

7.11.28 Intermediate Transfer Belt

7.11.28.1 Removing the Right Cover (upper)

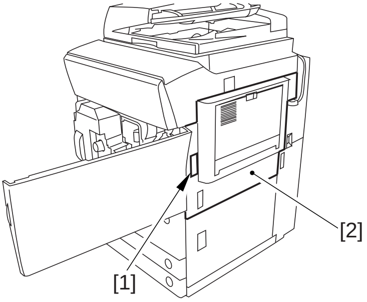
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-795

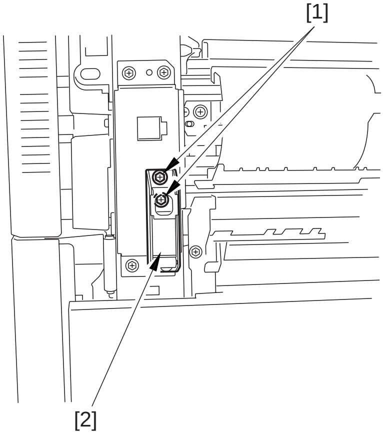
7.11.28.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



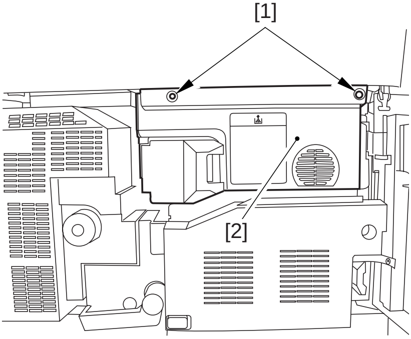
F-7-796

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-797

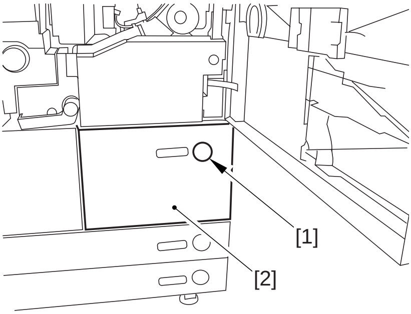
3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-798

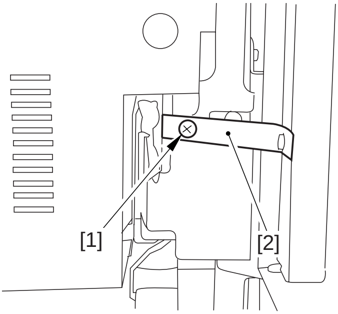
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



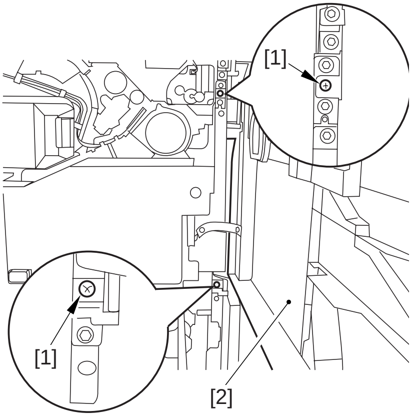
F-7-799

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-800

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

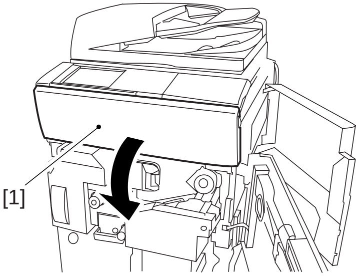


F-7-801

9) Close the right deck.

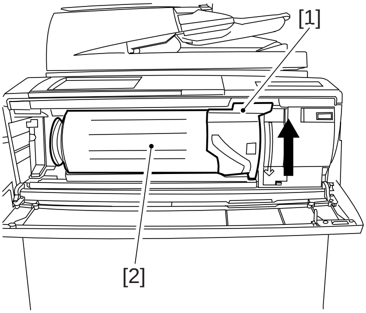
7.11.28.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



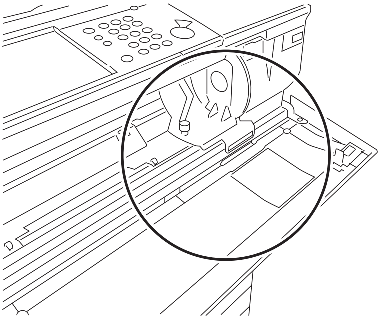
F-7-802

2) Shift down the lever [1], and detach the black toner bottle [2].



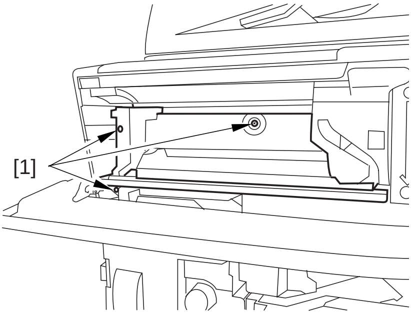
F-7-803

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



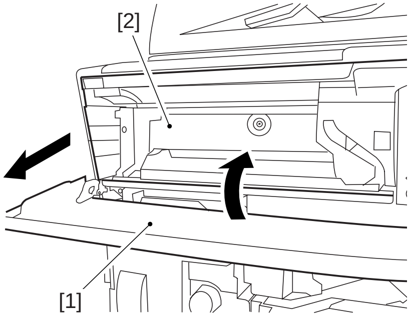
F-7-804

3) Remove the 3 screws [1].



F-7-805

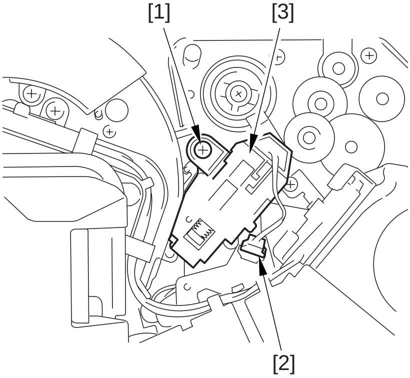
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-806

7.11.28.4 Removing the Pre-Transfer Charging Assembly

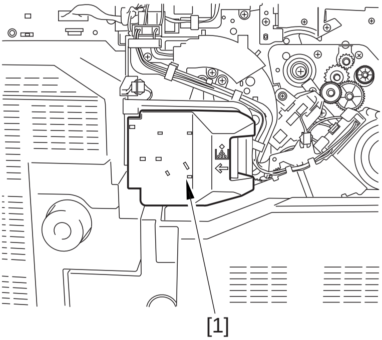
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-807

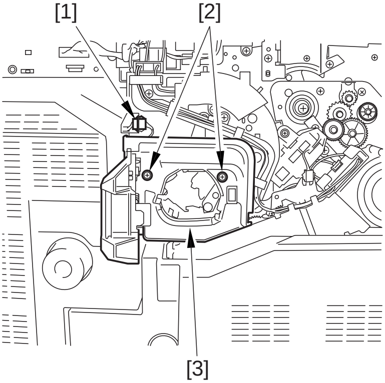
7.11.28.5 Removing the Transfer Cleaning Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-808

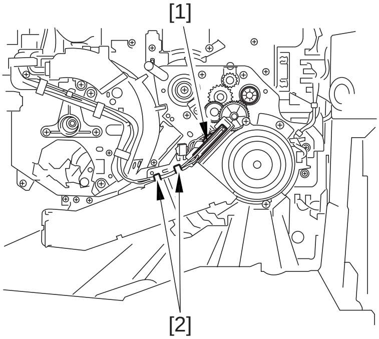
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-809

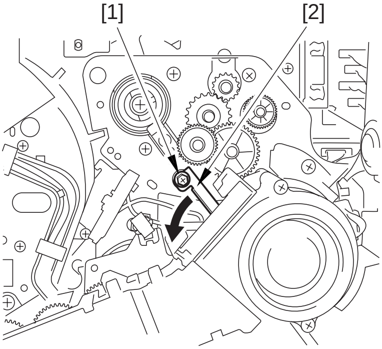
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



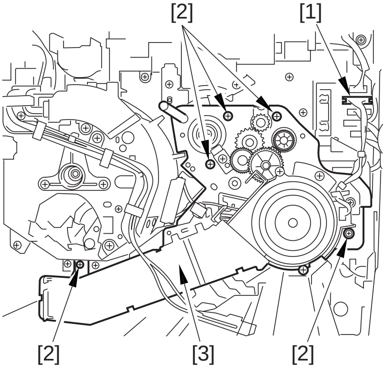
F-7-810

5) Remove the screw [1], and shift down the locking plate [2].



F-7-811

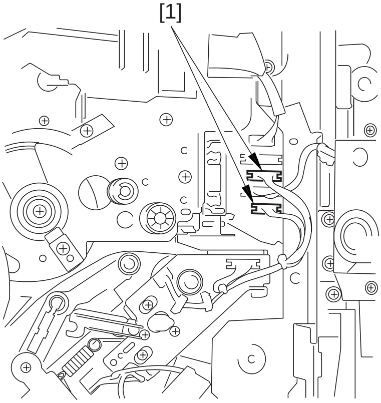
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-812

7.11.28.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].



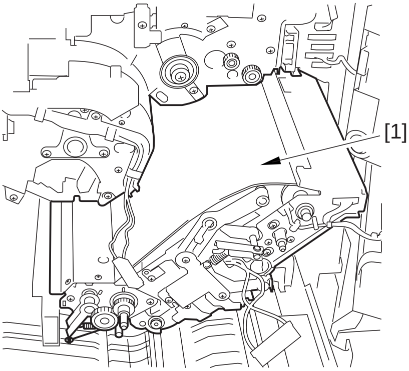
F-7-813

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer

assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

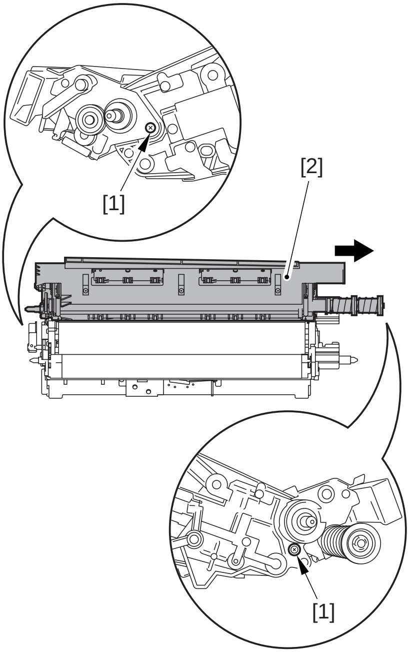
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-814

7.11.28.7 Removing the ITB Cleaning Unit

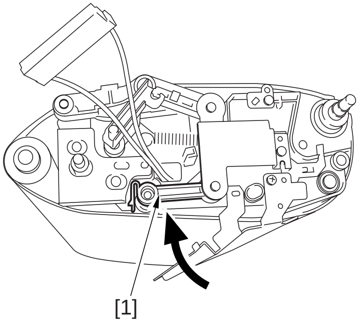
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-815

7.11.28.8 Removing the Patch Image Reading Unit

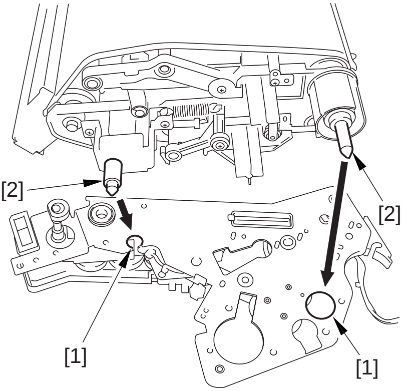
1) Shift the arm [1] shown in the figure to lock it in place; thus releasing the roller (both front and rear).



F-7-816

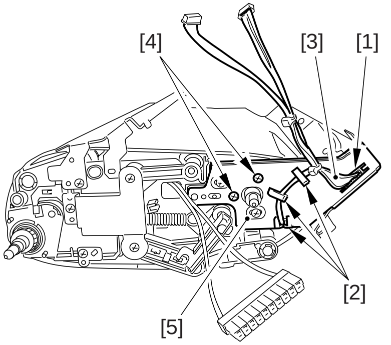
2) Stand the intermediate transfer unit by fitting its 2 pints [2] in the 2 holes of the fixing/feeding assembly.

⚠ Make sure that the ITB cleaner unit has been already removed.



F-7-817

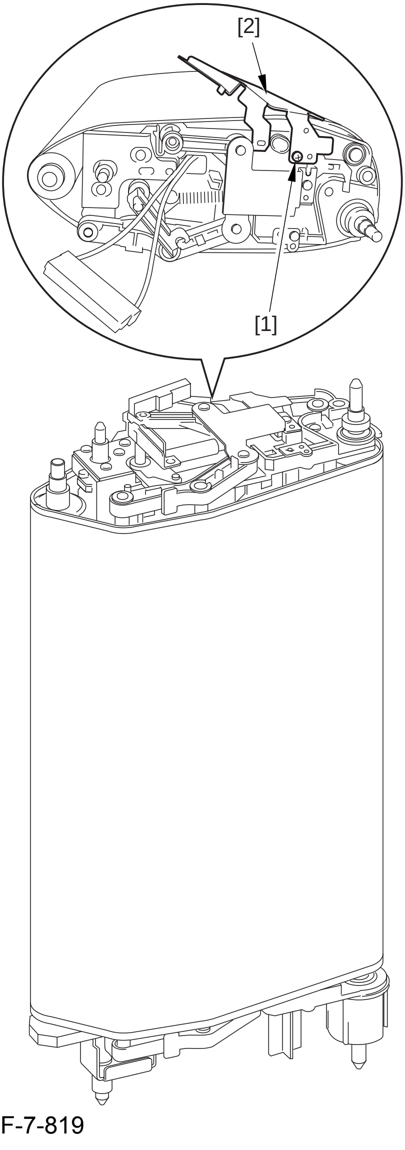
3) Disconnect the connector [1], and free the cable [3] from the 3 cable clamps [2].
4) Remove the 2 screws [4], and detach the patch image reading unit [5].



F-7-818

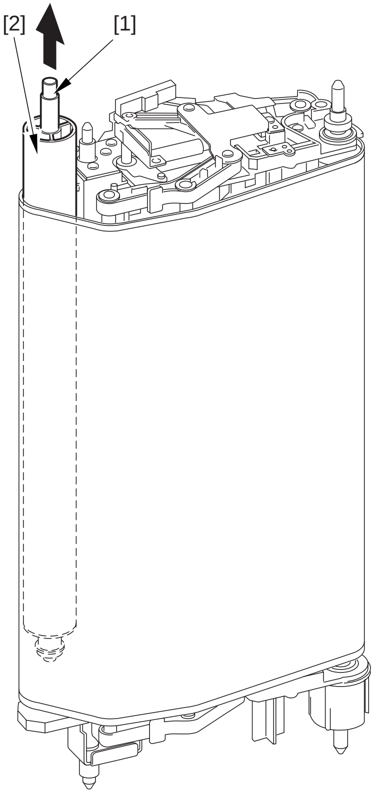
7.11.28.9 Removing the Idler Roller

1) Remove the screw [1], and detach the pre-transfer guide [2].



F-7-819

2) Holding the shaft of the idler roller [1], pull the roller upright to detach.

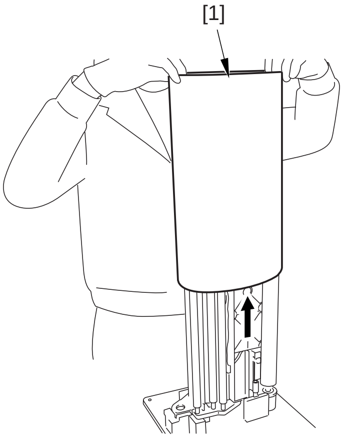


F-7-820

⚠ When detaching the roller, take care not to damage the surface of the ITB by the roller.

7.11.28.10 Removing the ITB

1) Holding the ITB [1] by the edge, pull it straight up to detach.



F-7-821

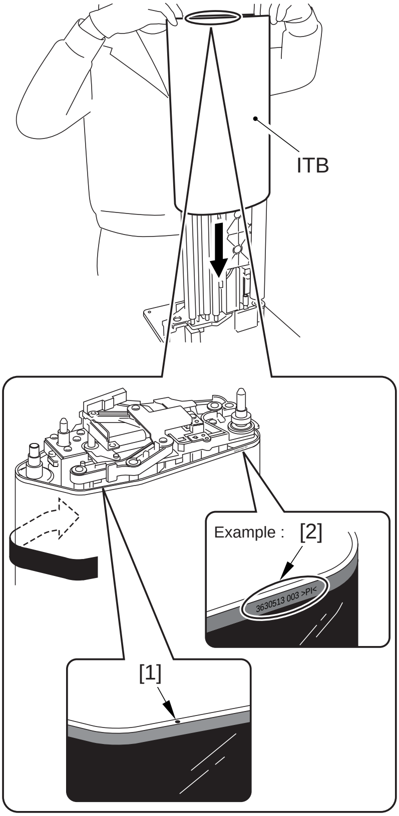
7.11.28.11 Points to Note When Attaching the ITB

⚠

When attaching the intermediate transfer belt, take full care so that the belt will not be upside down.

See that the red marking [1] is found on the edge of the intermediate transfer belt. Otherwise, you must detach the belt, turn it over, and then attach it.

To prevent reversed attachment of the intermediate transfer belt, there is a number marking (10-digit) [2] on its surface (edge) in addition to the foregoing marking.



F-7-822

When you have replaced the ITB, be sure to execute the following service mode item.

Be sure that you execute service mode immediately after the control panel screen has appeared

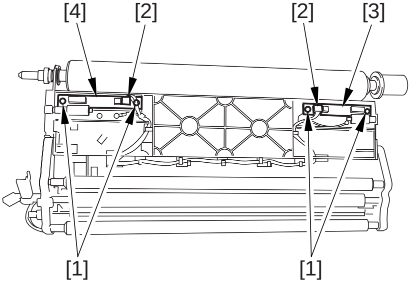
after turning on the main switch. : COPIER>FUNCTION>MISC-P>1TR-ROT

7.11.29 ITB Home Position Sensor PCB

7.11.29.1 Removing the ITB Home Position Sensor (right, left)

1) Detach the ITB.

2) Remove the screws [1] (2 pc. each), and disconnect the connectors [2] (1 pc. each); then, detach the ITB home position sensor (right) [3] and the other ITB home position sensor (left) [4].



F-7-823

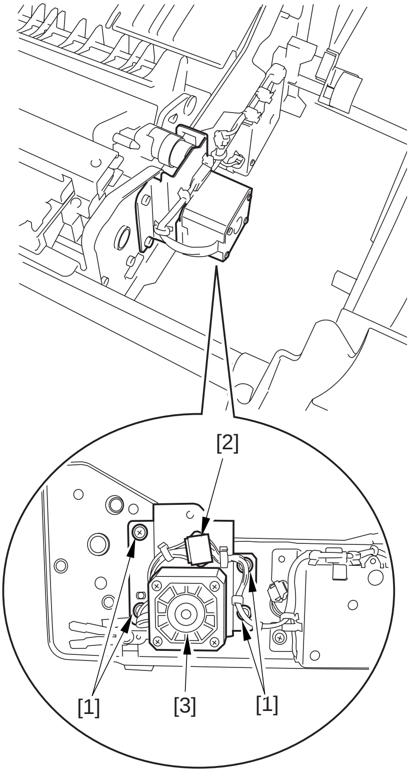
⚠ If you are replacing the ITB home position sensor (right, left), take care to avoid touching the sensor widow; otherwise, wrong detention can occur.

7.11.30 Secondary Transfer Roller Shift Motor

7.11.30.1 Secondary Transfer Roller Shift Motor

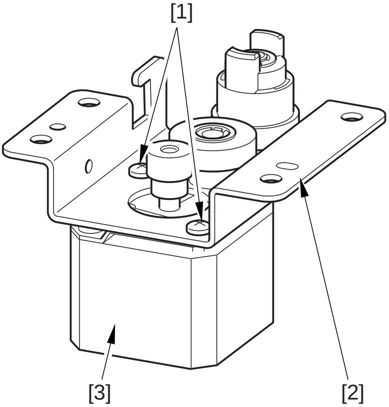
1) Fully slide out the fixing/feeding assembly.

2) Remove the 24 screws [1], and disconnect the connector [2]; then, detach the secondary transfer cam assembly [3].



F-7-824

3) Remove the 2 screws [1], and detach the secondary roller shift motor [3] from the secondary transfer cam assembly [2].

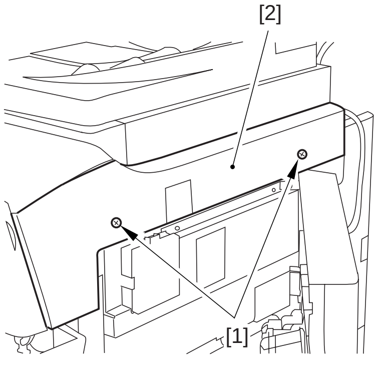


F-7-825

7.11.31 Primary Transfer Roller

7.11.31.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

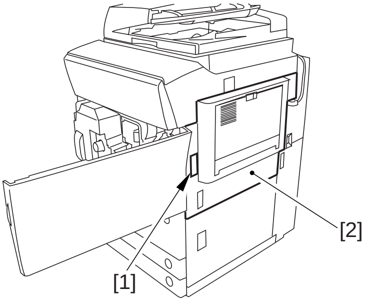


F-7-826

7.11.31.2 Releasing the Front Cover

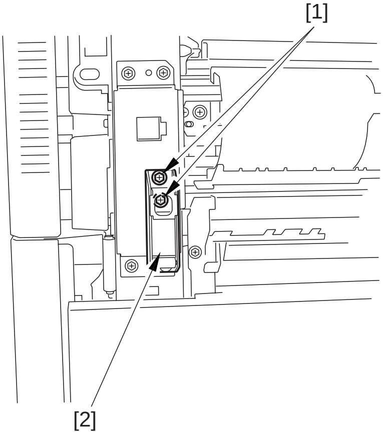
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-827

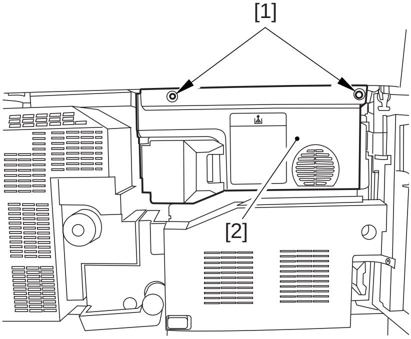
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-828

3) Slide out the fixing/feeding assembly

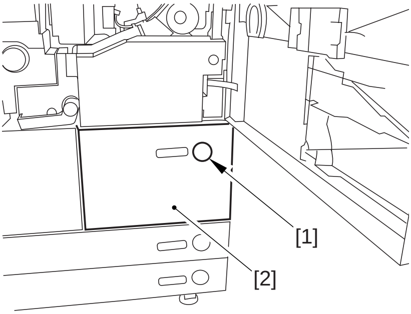
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-829

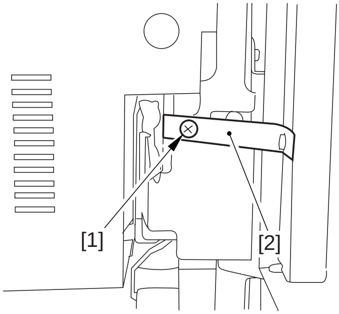
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



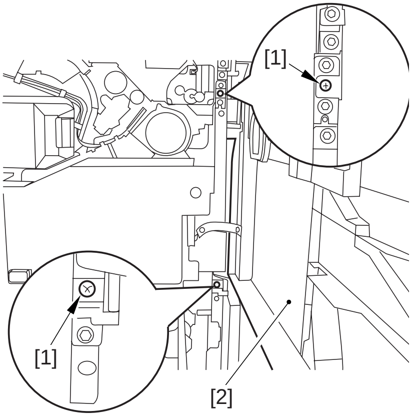
F-7-830

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-831

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

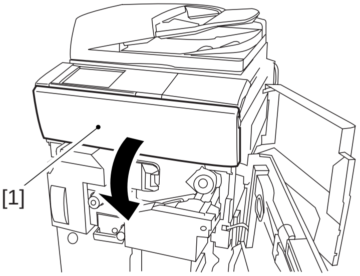


F-7-832

9) Close the right deck.

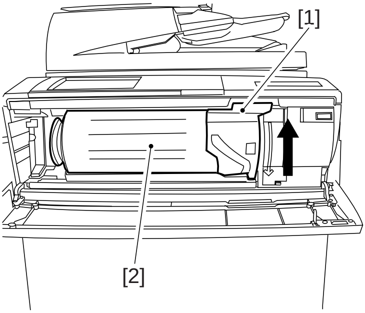
7.11.31.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



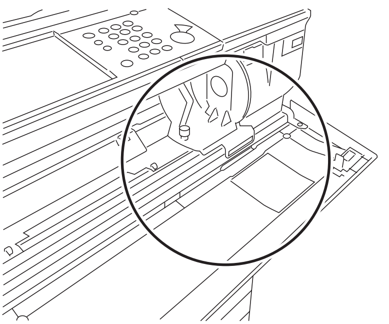
F-7-833

2) Shift down the lever [1], and detach the black toner bottle [2].



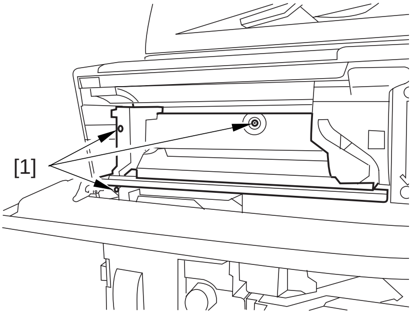
F-7-834

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



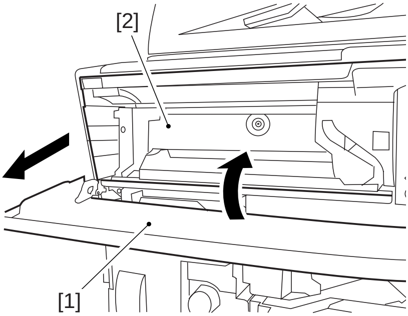
F-7-835

3) Remove the 3 screws [1].



F-7-836

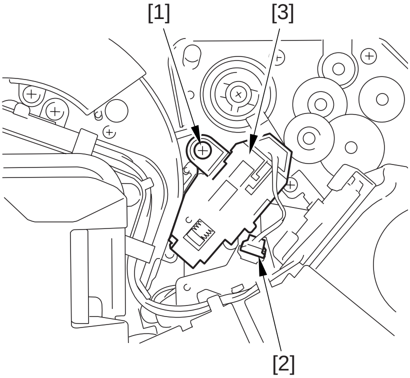
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-837

7.11.31.4 Removing the Pre-Transfer Charging Assembly

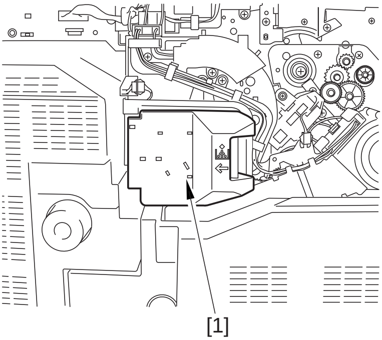
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-838

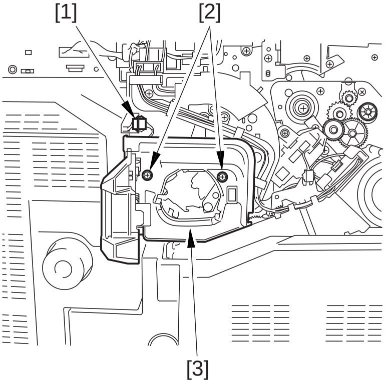
7.11.31.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-839

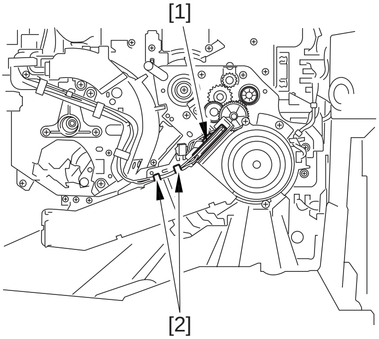
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-840

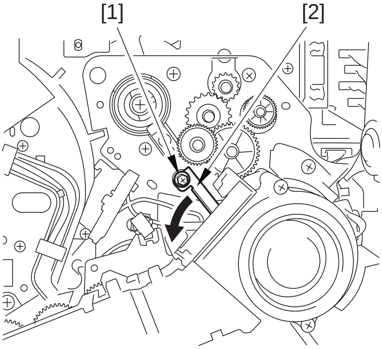
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



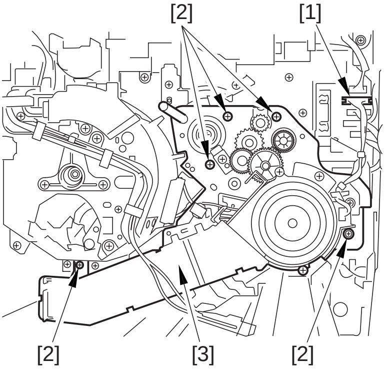
F-7-841

5) Remove the screw [1], and shift down the locking plate [2].



F-7-842

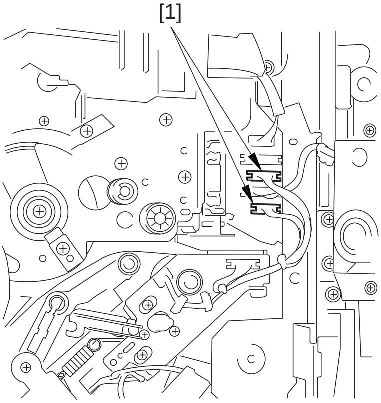
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-843

7.11.31.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

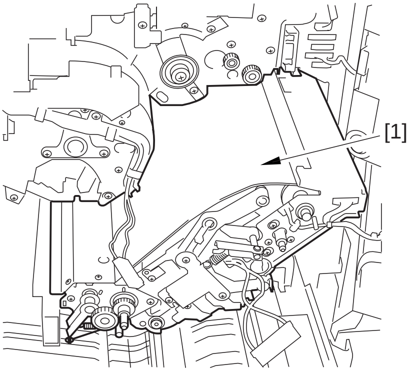


F-7-844

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

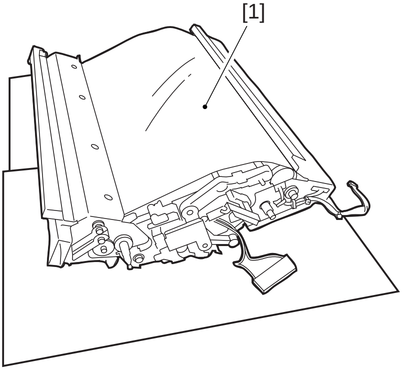
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-845

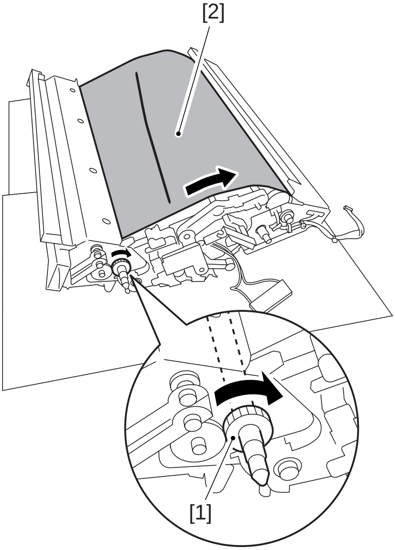
7.11.31.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



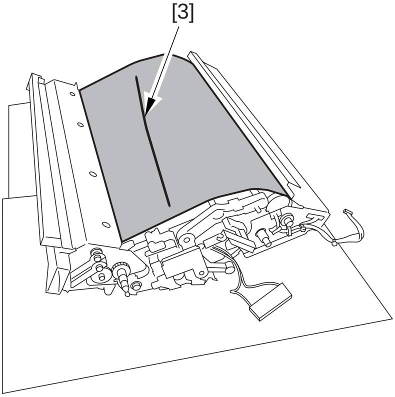
F-7-846

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



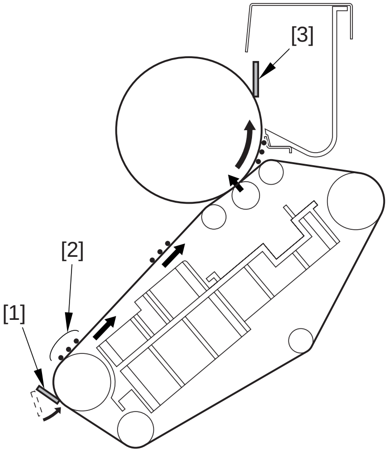
F-7-847

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-848

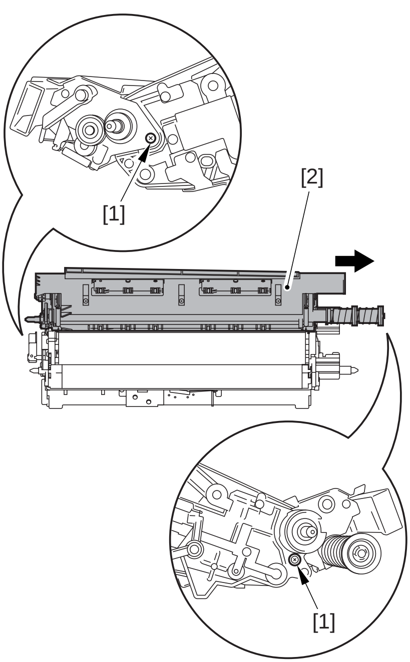
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-849

7.11.31.8 Removing the ITB Cleaning Unit

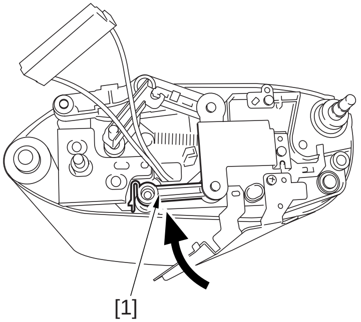
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-850

7.11.31.9 Removing the Patch Image Reading Unit

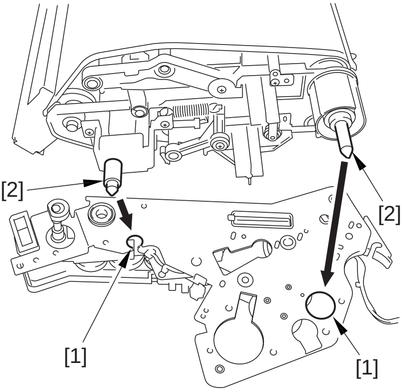
1) Shift the arm [1] shown in the figure to lock it in place; thus releasing the roller (both front and rear).



F-7-851

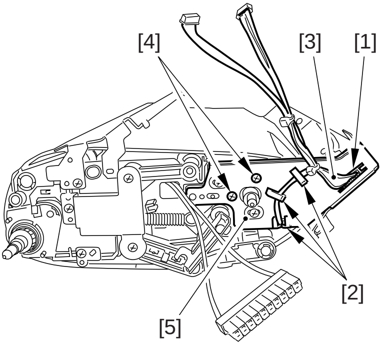
2) Stand the intermediate transfer unit by fitting its 2 pints [2] in the 2 holes of the fixing/feeding assembly.

⚠ Make sure that the ITB cleaner unit has been already removed.



F-7-852

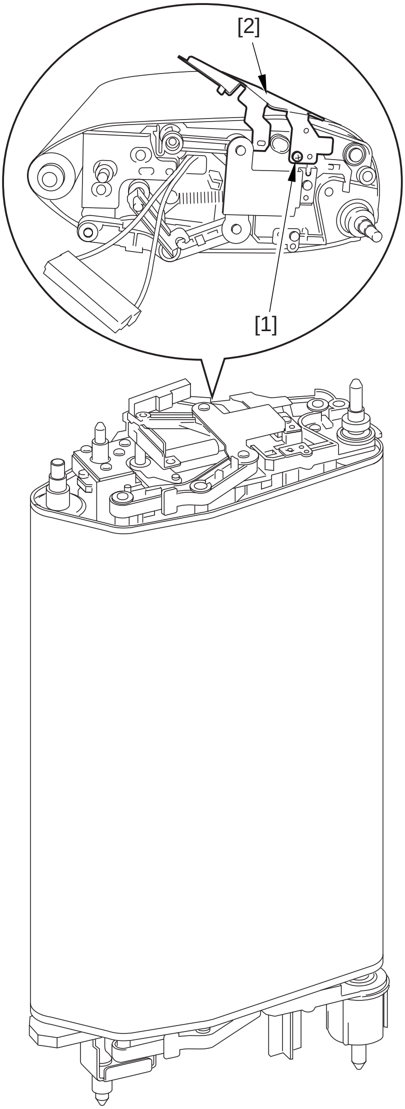
3) Disconnect the connector [1], and free the cable [3] from the 3 cable clamps [2].
4) Remove the 2 screws [4], and detach the patch image reading unit [5].



F-7-853

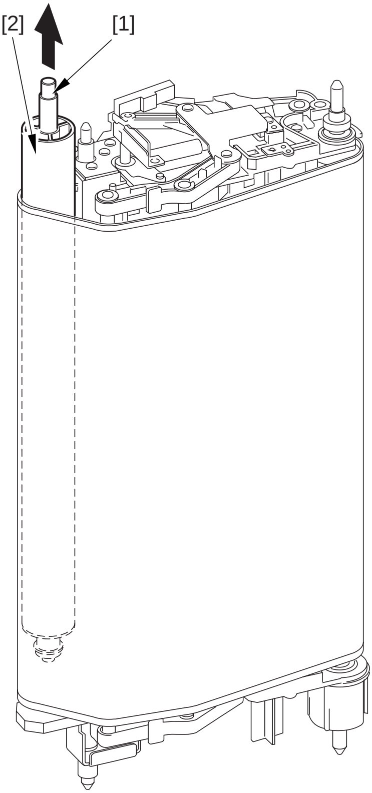
7.11.31.10 Removing the Idler Roller

1) Remove the screw [1], and detach the pre-transfer guide [2].



F-7-854

2) Holding the shaft of the idler roller [1], pull the roller upright to detach.

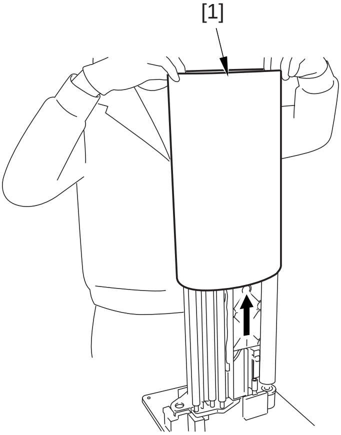


F-7-855

⚠ When detaching the roller, take care not to damage the surface of the ITB by the roller.

7.11.31.11 Removing the ITB

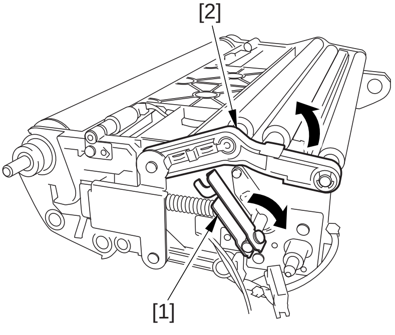
1) Holding the ITB [1] by the edge, pull it straight up to detach.



F-7-856

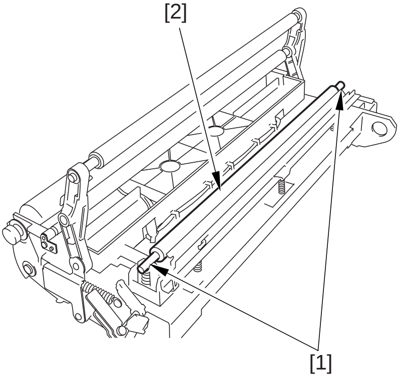
7.11.31.12 Removing the Primary Transfer Roller

1) Shift the locking lever [1] in the direction of the arrows; then, lift the roller arm [2].



F-7-857

2) Pick the shaft [1] of the primary transfer roller [2], and detach the roller.



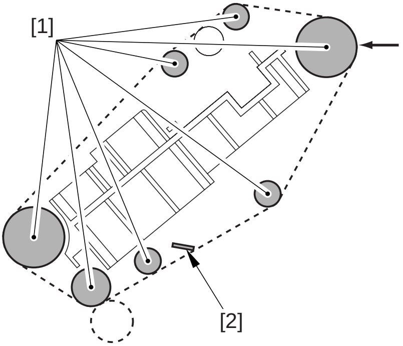
F-7-858

7.11.31.13 Points to Note When Replacing the Primary Transfer Roller

As the machine is used more and more, the shavings from the primary transfer roller can start to collect on the rollers behind the belt.

When you have replaced the primary transfer roller, be sure to clean the 6 rollers [1] and the scraper [2] indicated below.

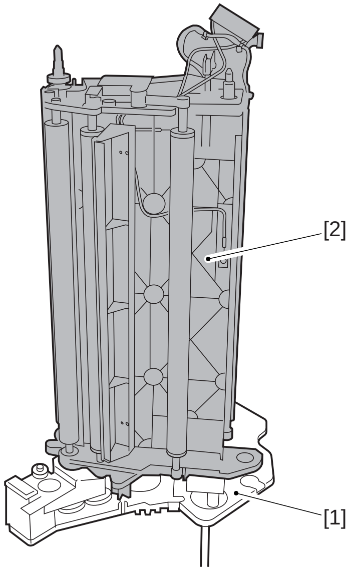
⚠The idler roller (indicated by an arrow) is designed for mounting after fitting the intermediate transfer belt. Although the figure shows the roller, it is only for reference purposes, and the roller is not in its indicated position at this point in time.



F-7-859

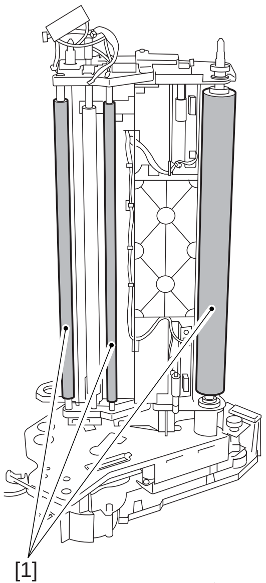
<Cleaning Procedure>

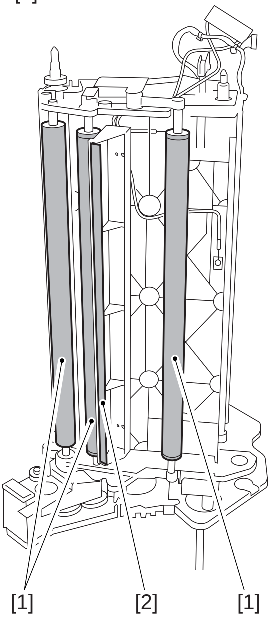
1) Place the ITB cleaner drive unit [1] with its cover facing down; then, stand the ITB unit [2].



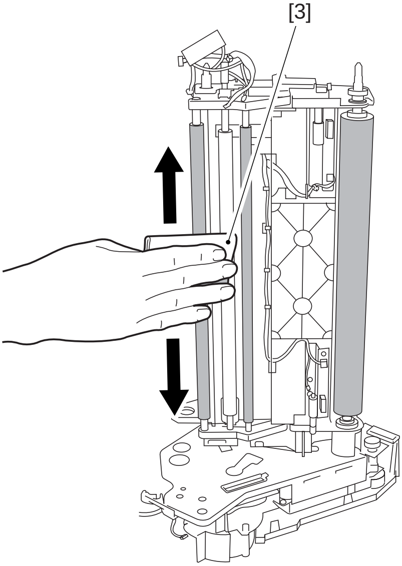
F-7-860

2) Clean the rollers [1] and the inside scraper [2] using alcohol.





F-7-861



F-7-862

⚠When you have replaced the primary transfer roller, be sure to execute the following service mode item.

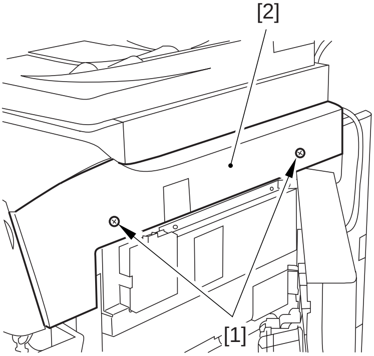
Be sure that you execute service mode immediately after the control panel screen has appeared

after turning on the main switch. : COPIER>FUNCTION>MISC-P>ITR-ROT.

7.11.32 Secondary Transfer Internal Roller

7.11.32.1 Removing the Right Cover (upper)

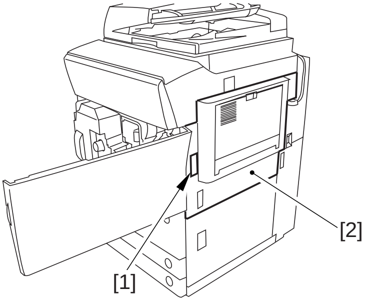
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-863

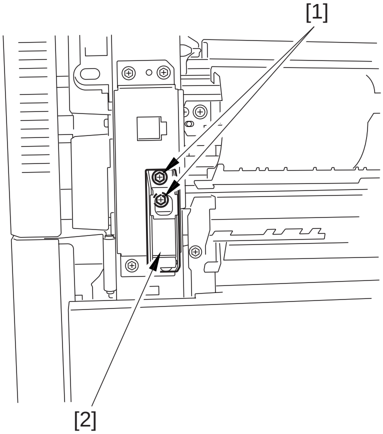
7.11.32.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-864

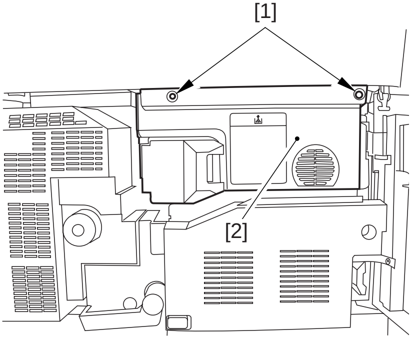
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-865

3) Slide out the fixing/feeding assembly

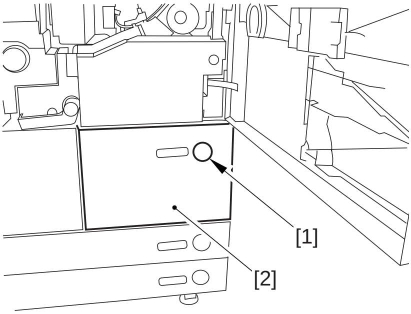
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-866

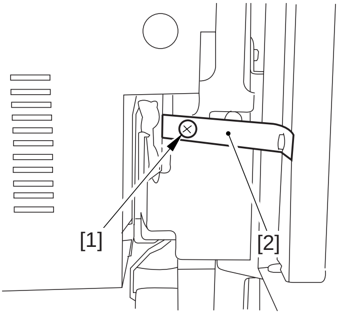
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



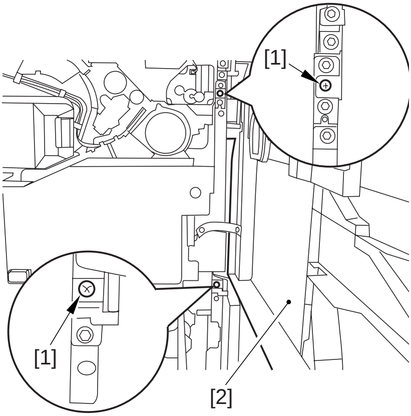
F-7-867

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-868

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

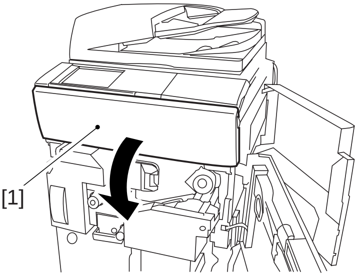


F-7-869

9) Close the right deck.

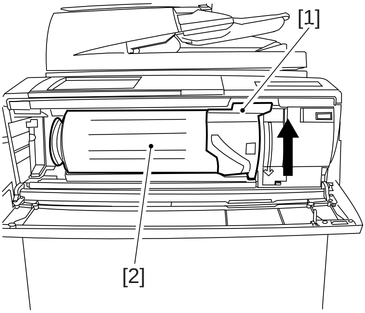
7.11.32.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



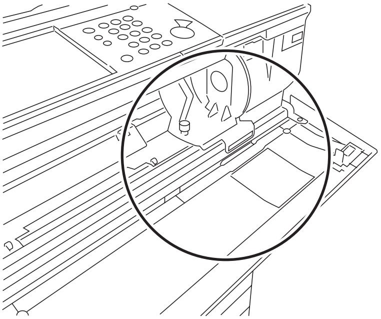
F-7-870

2) Shift down the lever [1], and detach the black toner bottle [2].



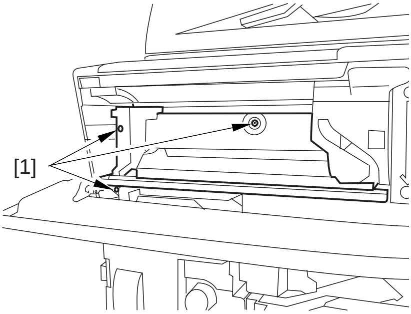
F-7-871

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



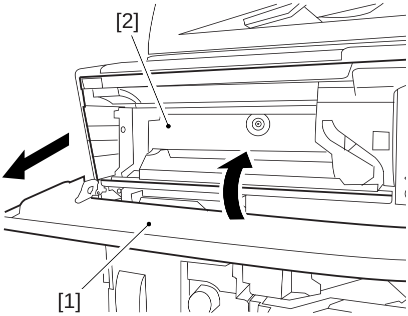
F-7-872

3) Remove the 3 screws [1].



F-7-873

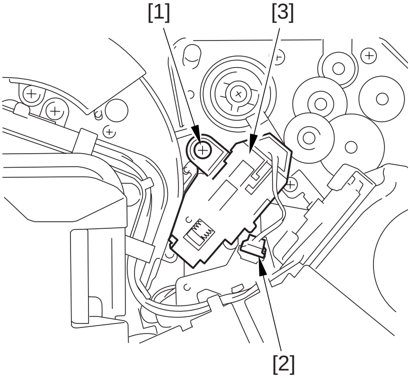
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-874

7.11.32.4 Removing the Pre-Transfer Charging Assembly

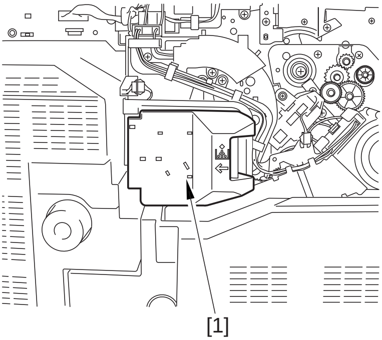
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-875

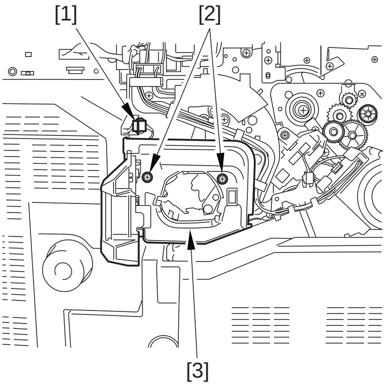
7.11.32.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-876

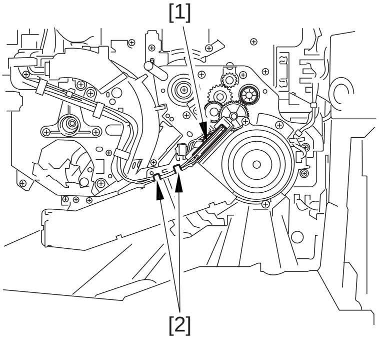
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-877

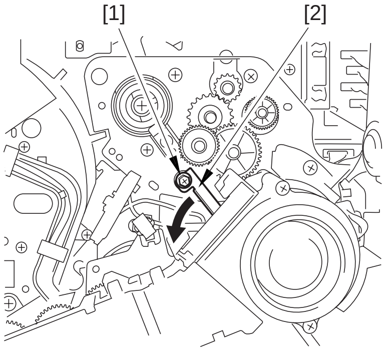
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



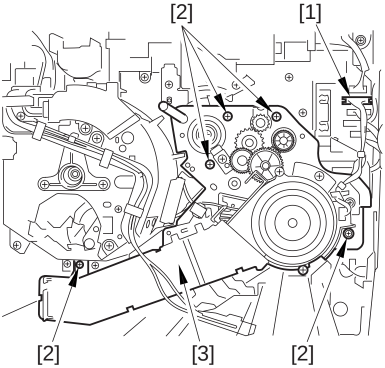
F-7-878

5) Remove the screw [1], and shift down the locking plate [2].



F-7-879

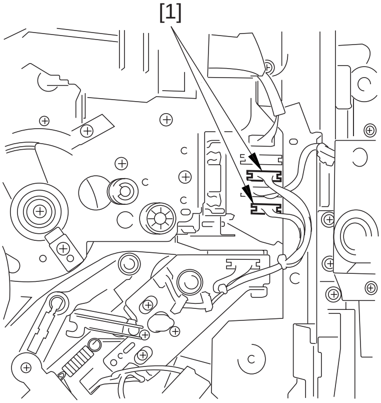
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-880

7.11.32.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

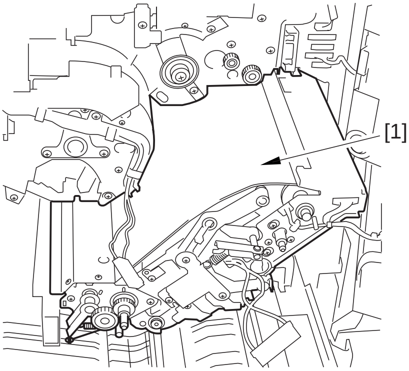


F-7-881

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

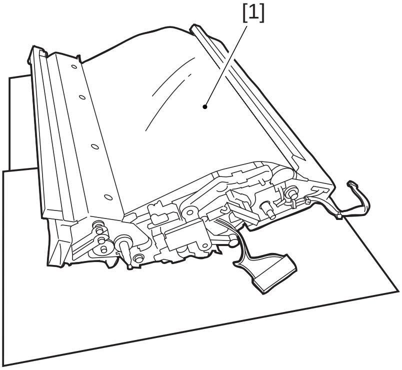
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-882

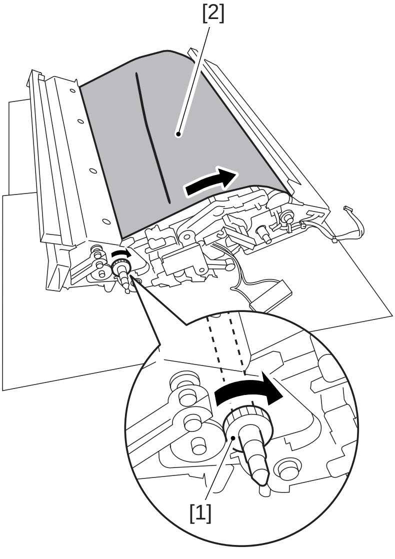
7.11.32.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



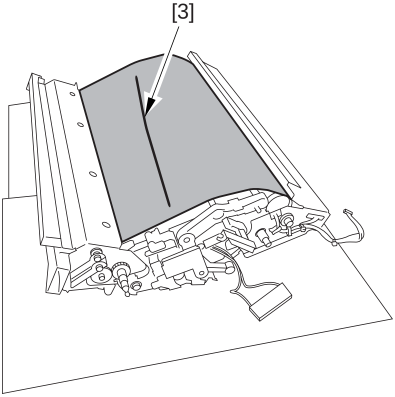
F-7-883

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



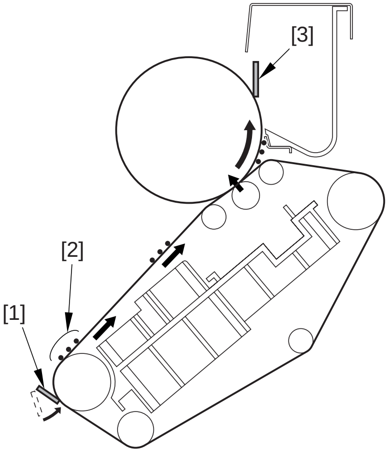
F-7-884

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-885

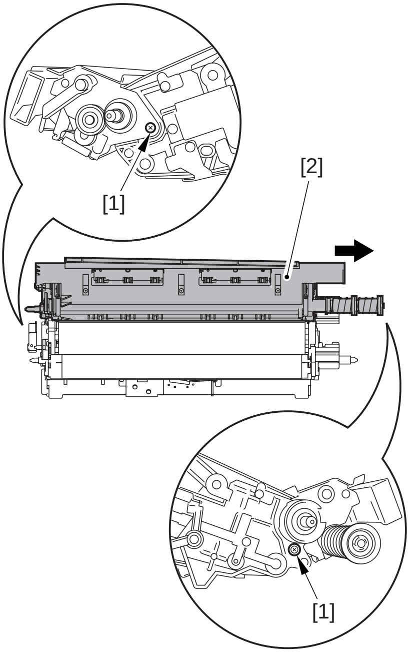
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-886

7.11.32.8 Removing the ITB Cleaning Unit

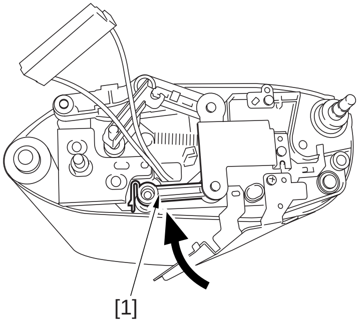
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-887

7.11.32.9 Removing the Patch Image Reading Unit

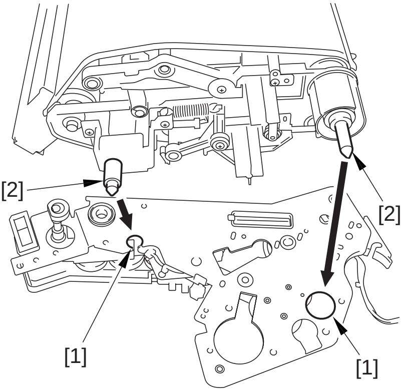
1) Shift the arm [1] shown in the figure to lock it in place; thus releasing the roller (both front and rear).



F-7-888

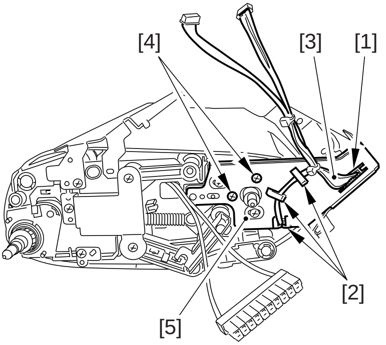
2) Stand the intermediate transfer unit by fitting its 2 pints [2] in the 2 holes of the fixing/feeding assembly.

⚠ Make sure that the ITB cleaner unit has been already removed.



F-7-889

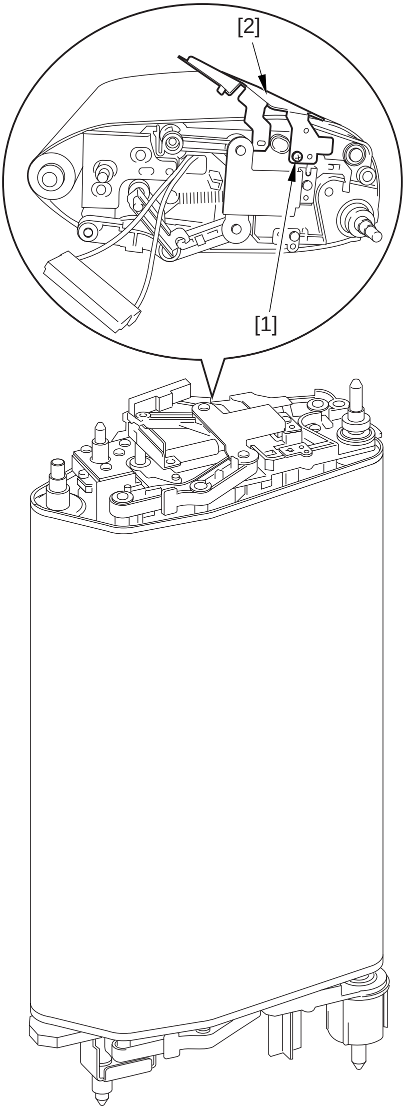
3) Disconnect the connector [1], and free the cable [3] from the 3 cable clamps [2].
4) Remove the 2 screws [4], and detach the patch image reading unit [5].



F-7-890

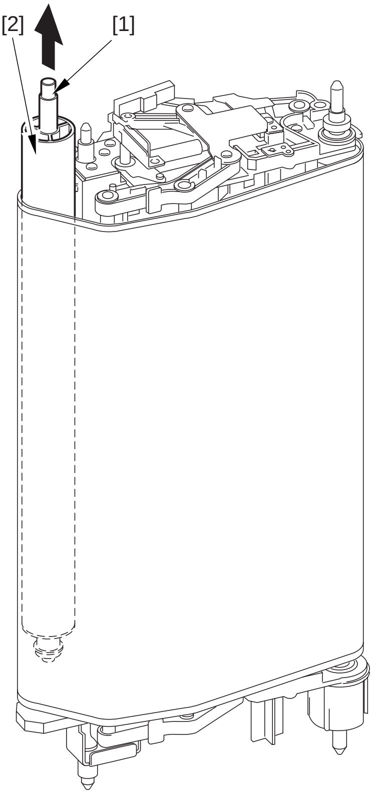
7.11.32.10 Removing the Idler Roller

1) Remove the screw [1], and detach the pre-transfer guide [2].



F-7-891

2) Holding the shaft of the idler roller [1], pull the roller upright to detach.

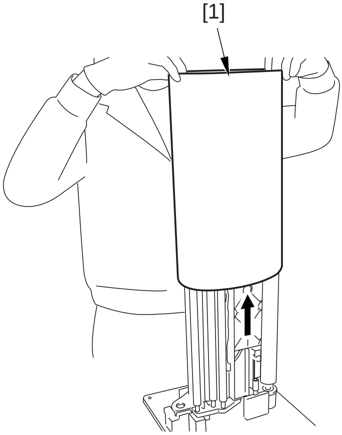


F-7-892

⚠ When detaching the roller, take care not to damage the surface of the ITB by the roller.

7.11.32.11 Removing the ITB

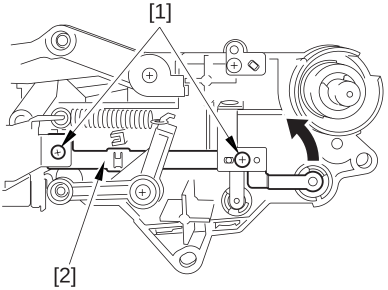
1) Holding the ITB [1] by the edge, pull it straight up to detach.



F-7-893

7.11.32.12 Removing the Secondary Transfer Inside Roller

1) Remove the 2 screws [1] found at the rear of the intermediate transfer unit; then, shift the electrode [2] in counterclockwise direction.

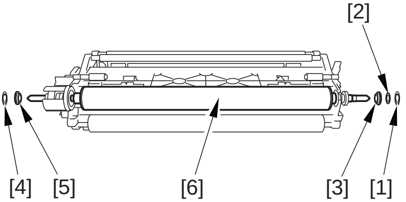


F-7-894

2) Remove the E-ring [1], washer [2], and bearing [3] from the front of the intermediate transfer unit.

3) Remove the E-ring [4] and the bearing [5] from the rear of the intermediate transfer unit.

4) Remove the secondary transfer inside roller [6].



F-7-895

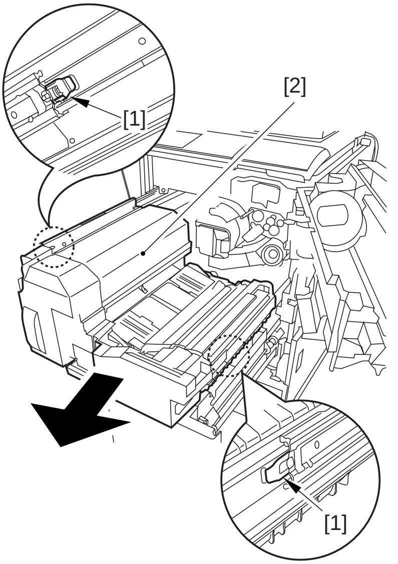
7.11.33 Secondary Transfer Roller

7.11.33.1 Removing the Secondary Transfer Unit

1) Open the front cover.

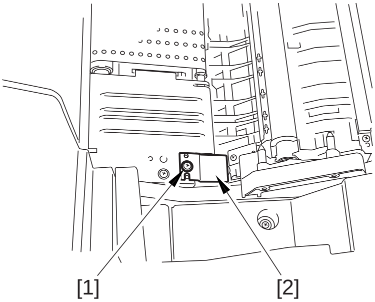
2) Slide out the fixing/feeding assembly.

3) While pushing the 2 hooks [1] frond on both sides of the fixing/feeding assembly, slide out the fixing/feeding assembly [2] fully.



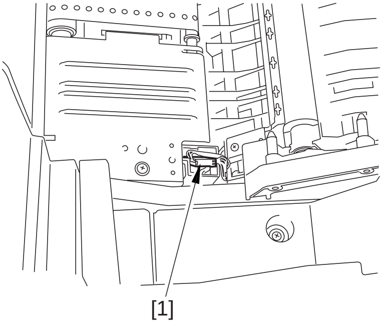
F-7-896

4) Remove the screw [1], and detach the connector cover [2].



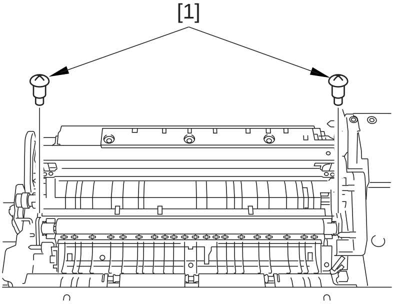
F-7-897

5) Disconnect the connector [1].



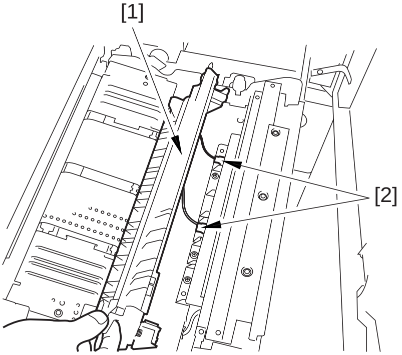
F-7-898

6) Remove the 2 stepped screws [1].



F-7-899

7) While shifting the secondary transfer unit [1], disconnect the 2 connectors [2]; then, detach the secondary transfer unit.

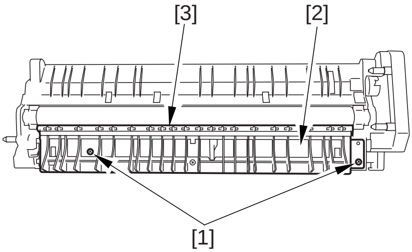


F-7-900

7.11.33.2 Removing the Secondary Transfer Static Eliminator Holder

1) Remove the 2 screws [1], and detach the secondary transfer guide [2].

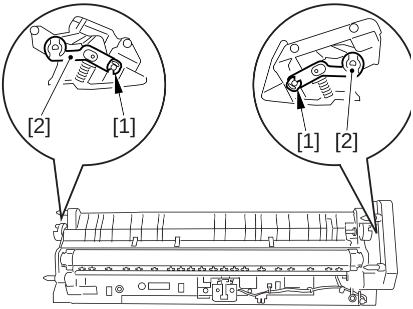
2) Remove the secondary transfer static eliminator holder [3].



F-7-901

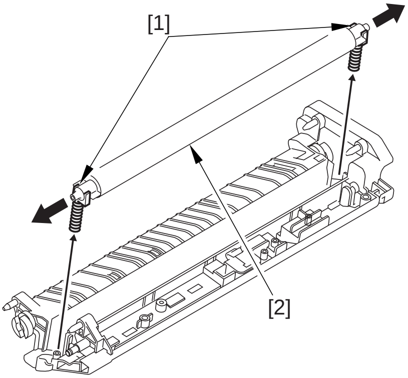
7.11.33.3 Removing the Secondary Transfer Roller

1) Remove the 2 E-rings [1], and detach the left roller arm [2] and the right roller arm [3].



F-7-902

2) Pull out the 2 secondary roller bushing [1] in the direction of the arrow; then, detach the secondary transfer roller [2].



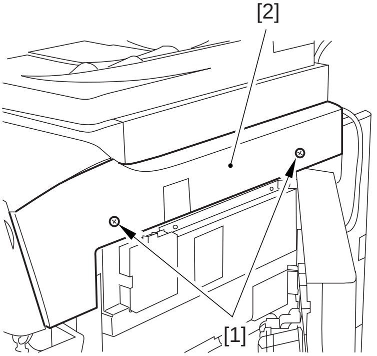
F-7-903

⚠ If you are replacing the secondary transfer roller, be sure to hold the roller shaft. Also, take care not to touch the surface of the roller and not to damage the roller.

7.11.34 ITB Cleaning Blade

7.11.34.1 Removing the Right Cover (upper)

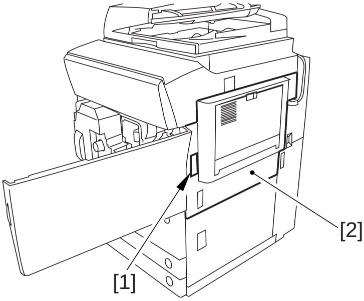
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-904

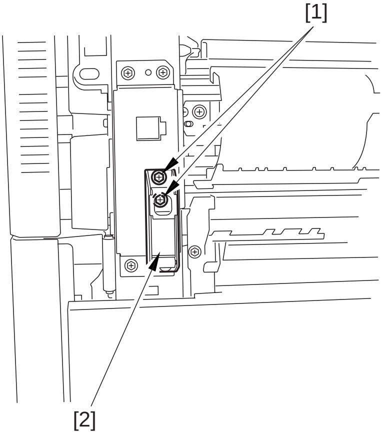
7.11.34.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



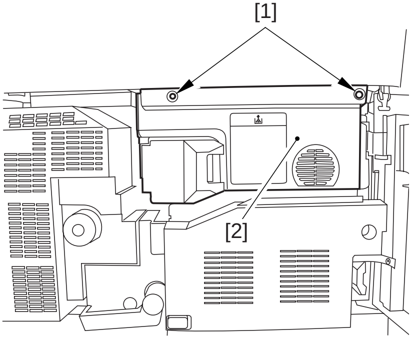
F-7-905

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-906

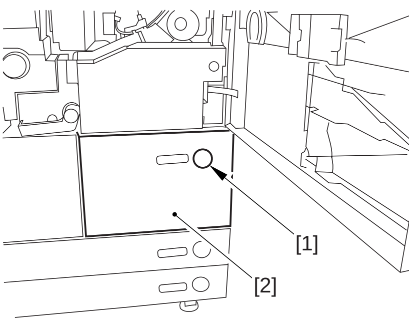
3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-907

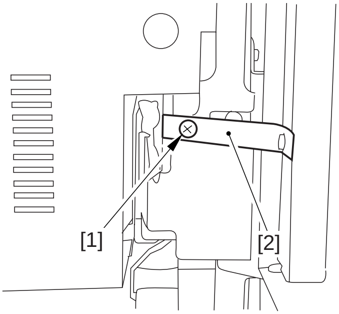
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



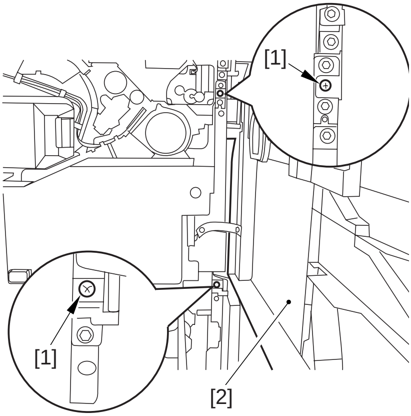
F-7-908

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-909

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

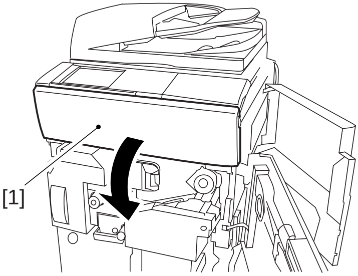


F-7-910

9) Close the right deck.

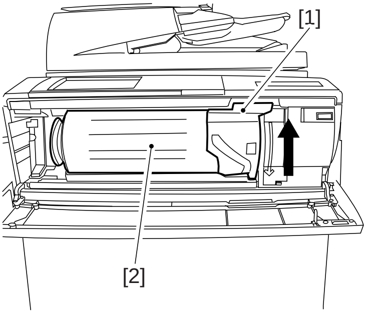
7.11.34.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



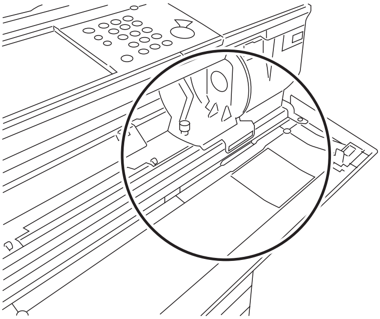
F-7-911

2) Shift down the lever [1], and detach the black toner bottle [2].



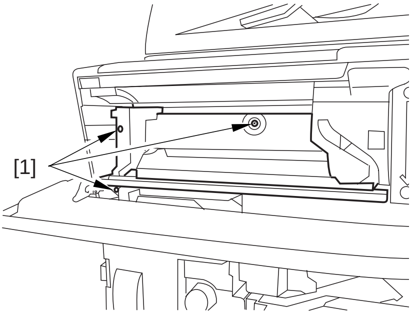
F-7-912

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



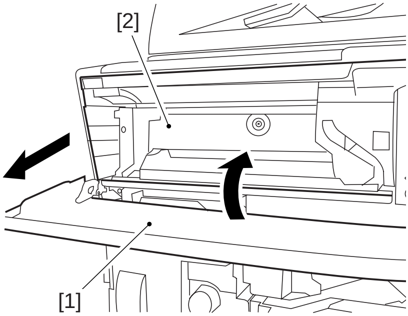
F-7-913

3) Remove the 3 screws [1].



F-7-914

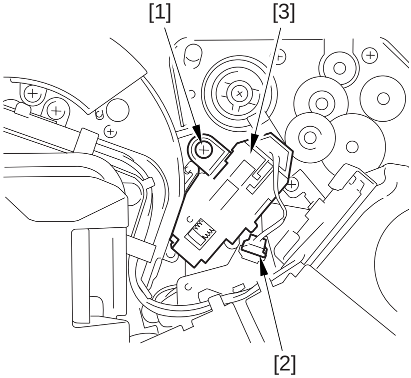
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-915

7.11.34.4 Removing the Pre-Transfer Charging Assembly

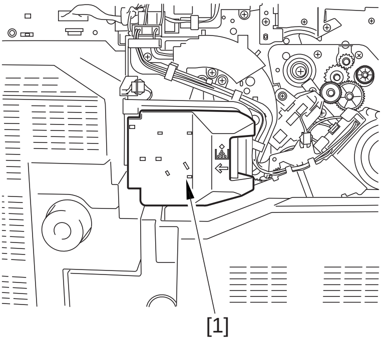
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-916

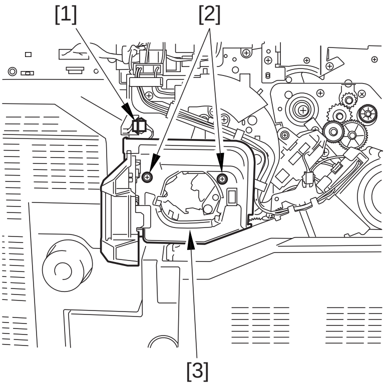
7.11.34.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-917

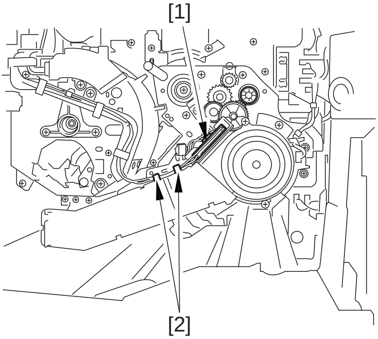
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-918

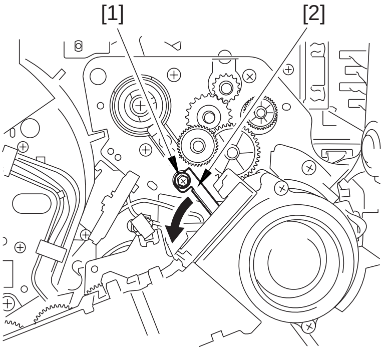
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



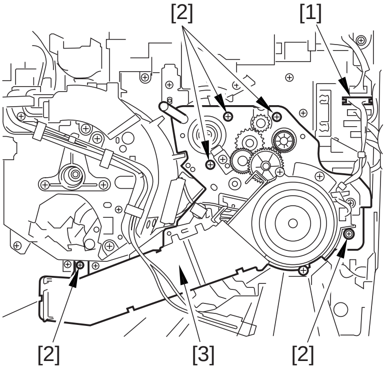
F-7-919

5) Remove the screw [1], and shift down the locking plate [2].



F-7-920

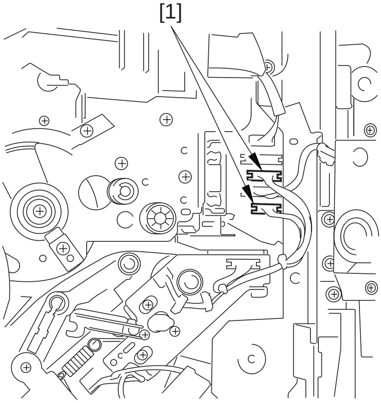
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-921

7.11.34.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].



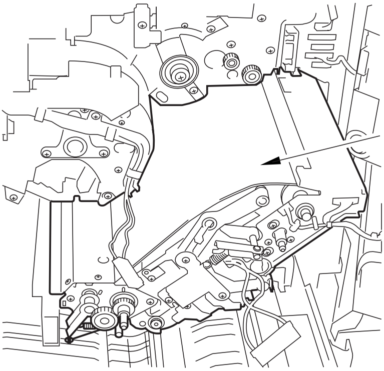
F-7-922

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer

assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

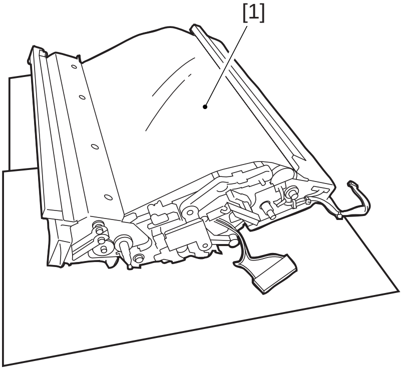
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-923

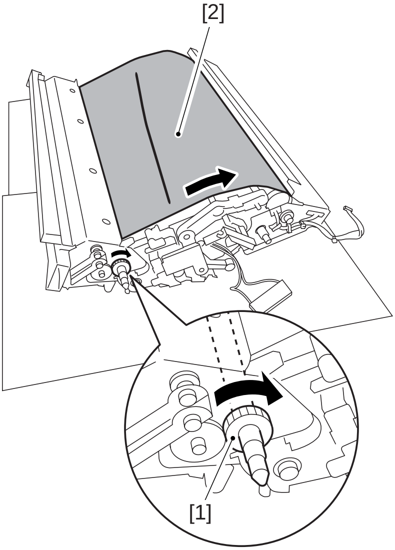
7.11.34.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



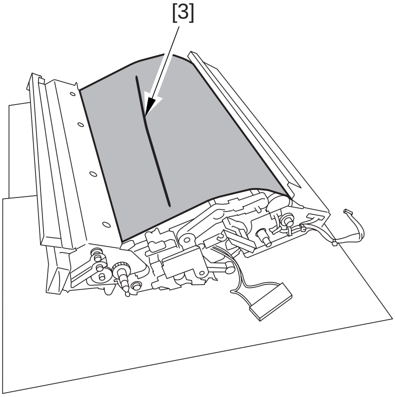
F-7-924

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



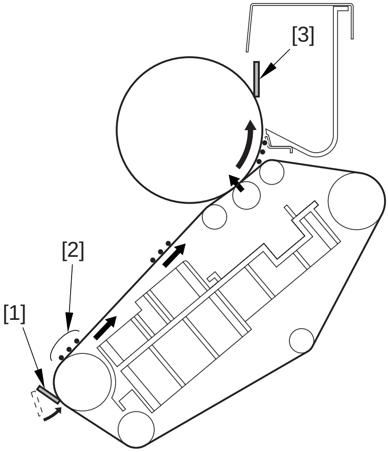
F-7-925

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-926

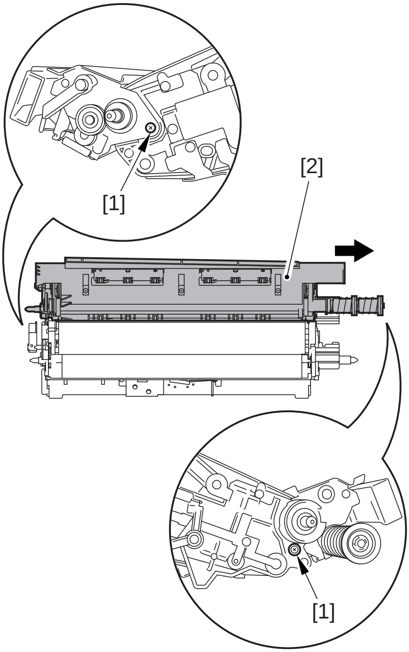
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-927

7.11.34.8 Removing the ITB Cleaning Unit

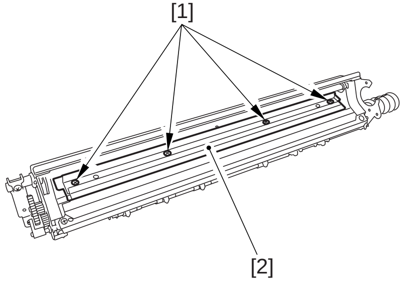
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-928

7.11.34.9 Remove the ITB Cleaning Blade

1) Remove the 4 screws [1], and detach the ITB cleaner blade [2].

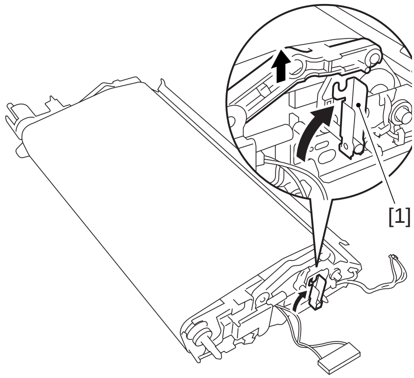


F-7-929

7.11.34.10 When Replacing the ITB Cleaning Blade

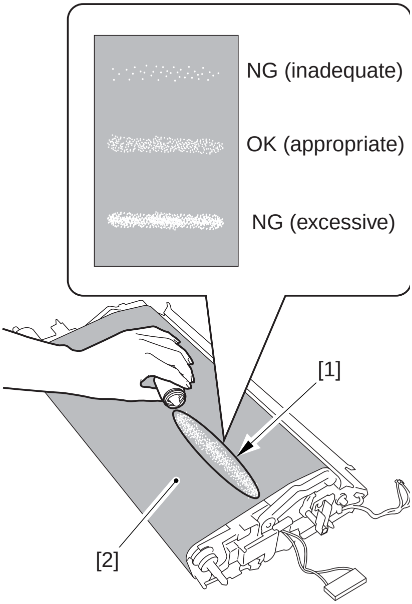
Whenever you need to replace the ITB cleaning blade, be sure to go though the following steps to apply blade lubricant (TKN-0480) to the edge of he blade.

1) Turn the primary transfer roller locking lever [1] in the direction of the arrow to engage the intermediate transfer belt.



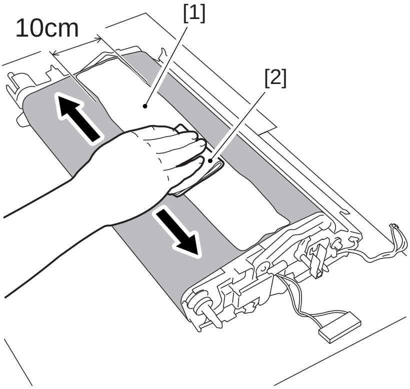
F-7-930

2) Apply an appropriate amount of blade lubricant [1] as if to sprinkle it over an area of the surface as shown.



F-7-931

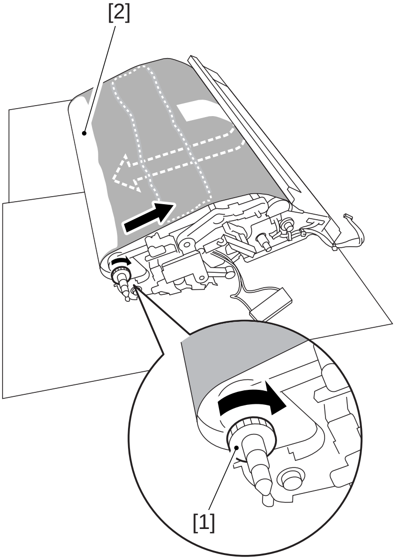
3) Spread the blade lubricant [1] using lint-free paper [2] as shown to cover an area of the belt about 10 cm wide.



F-7-932

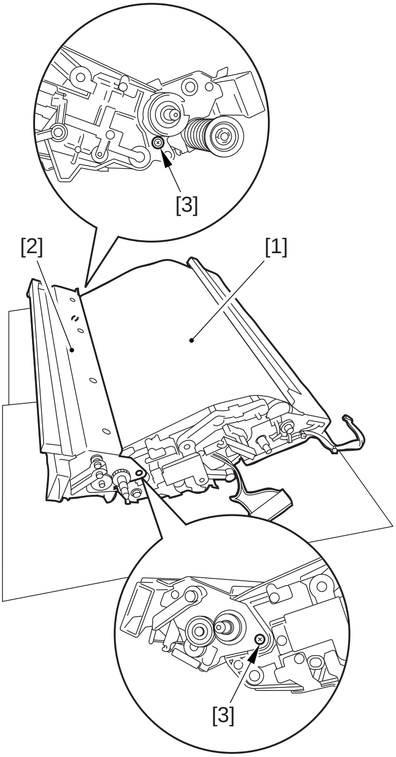
⚠Take care so that the blade lubricant will not make its way behind the intermediate transfer belt. Otherwise, the presence of blade lubricant behind the intermediate transfer belt can cause the ITB home position sensor to make wrong detection.

4) Turn the drive gear [1] in he direction of the arrow so that the area of blade lubricant [2] is found as shown.



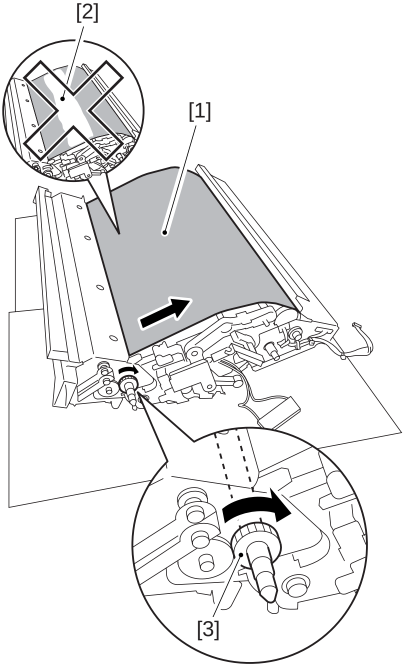
F-7-933

5) Mount the ITB cleaning unit [2] to the intermediate transfer unit [1]; then, fix it in place using 2 screws [3].



F-7-934

6) Turn the drive gear [3] until the area [2] of blade lubricant is no longer visible on the intermediate transfer belt [1].



F-7-935

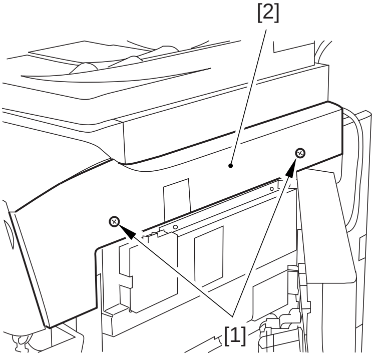
⚠If you have replaced the ITB cleaner blade, be sure to perform the following:

1) Execute the following service mode item (black band sequence): COPIER>FUNCTION>CLEANING>BK-BNDEX.

7.11.35 ITB Scoop-up Sheet

7.11.35.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

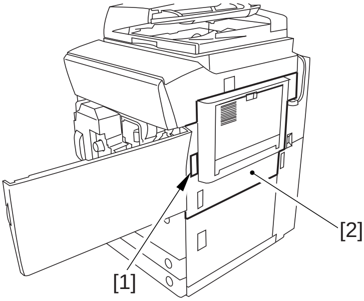


F-7-936

7.11.35.2 Releasing the Front Cover

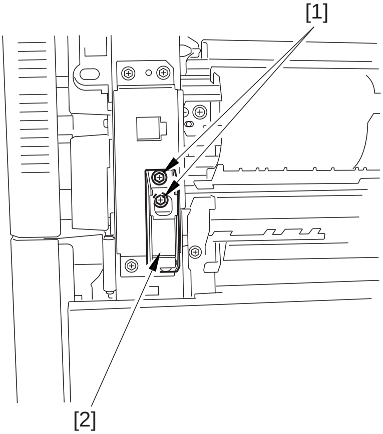
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-937

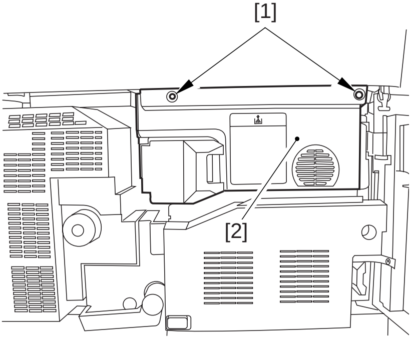
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-938

3) Slide out the fixing/feeding assembly

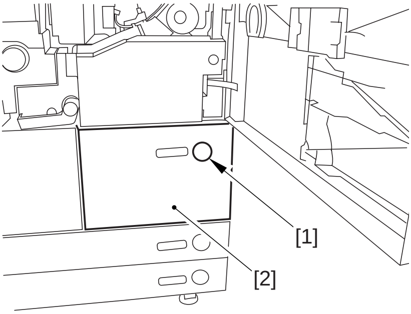
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-939

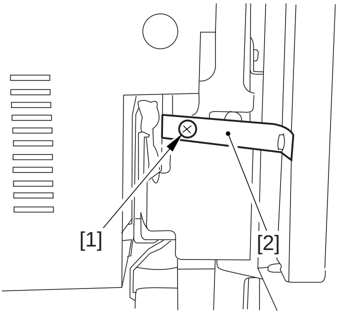
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



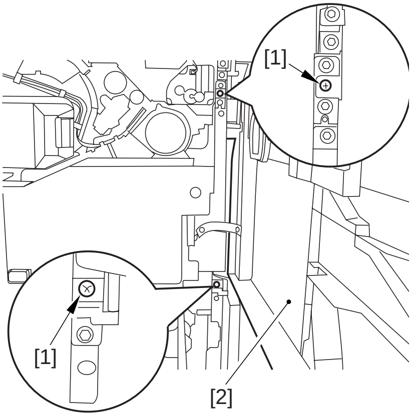
F-7-940

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-941

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

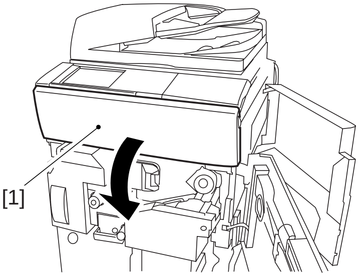


F-7-942

9) Close the right deck.

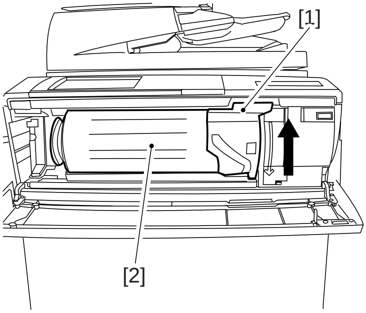
7.11.35.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



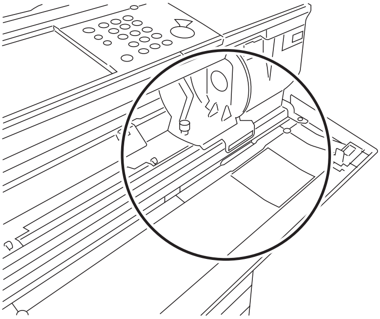
F-7-943

2) Shift down the lever [1], and detach the black toner bottle [2].



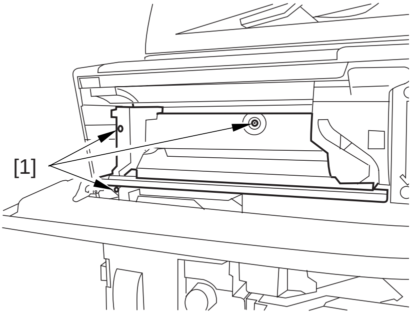
F-7-944

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



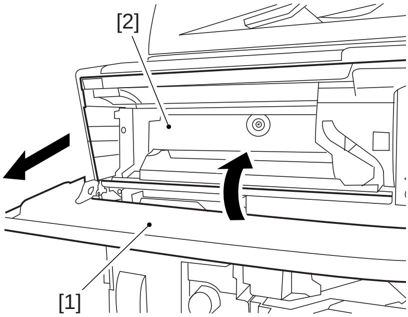
F-7-945

3) Remove the 3 screws [1].



F-7-946

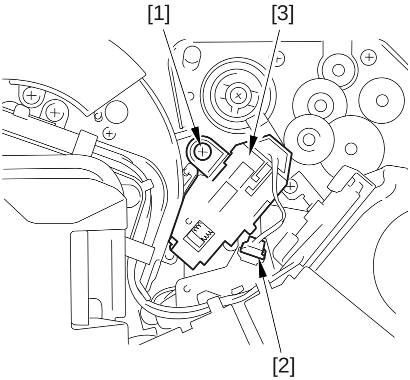
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-947

7.11.35.4 Removing the Pre-Transfer Charging Assembly

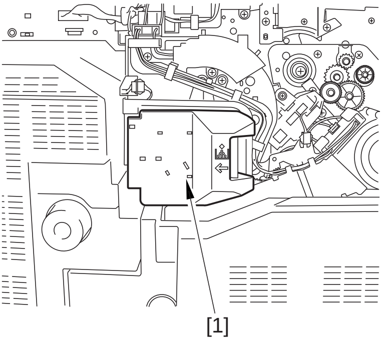
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-948

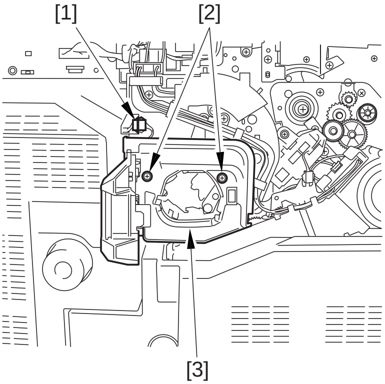
7.11.35.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-949

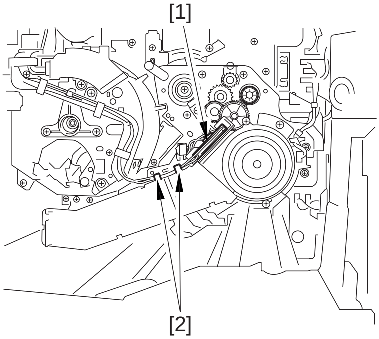
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-950

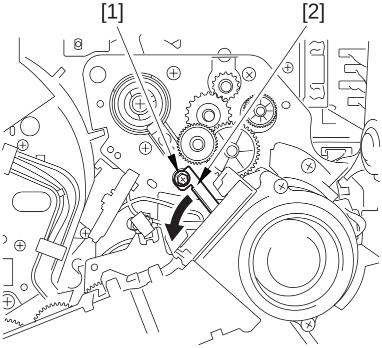
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



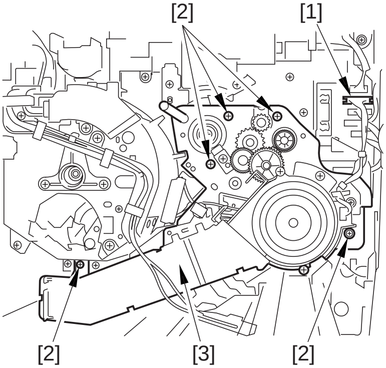
F-7-951

5) Remove the screw [1], and shift down the locking plate [2].



F-7-952

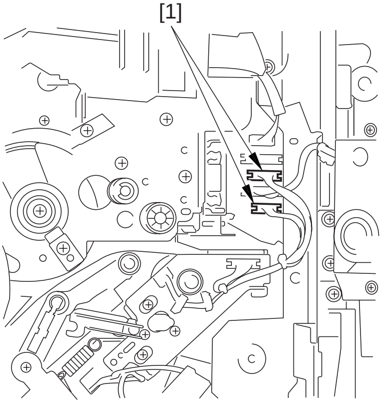
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-953

7.11.35.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

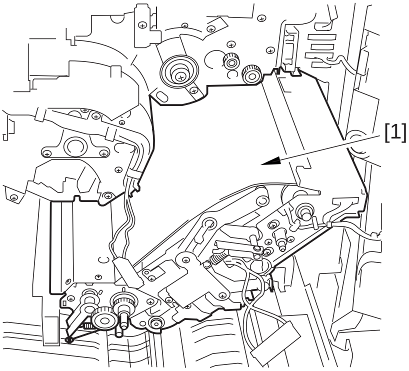


F-7-954

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

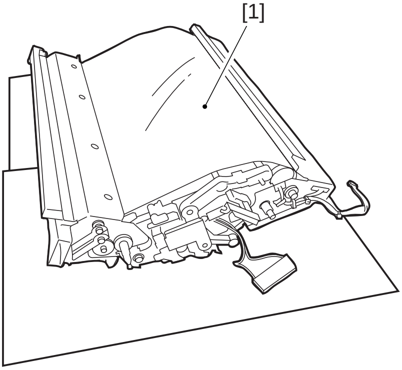
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-955

7.11.35.7 Cleaning the Surface of the Intermediate Transfer Unit

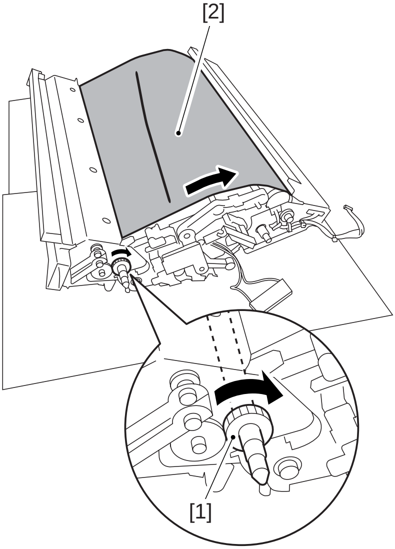
1) Place the ITB unit [1] on paper for protection.



F-7-956

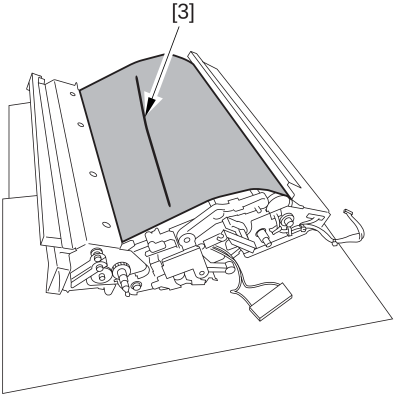
2) Turn the drive gear [1] by hand in the direction of the arrow to move the

intermediate transfer belt [2] about 50 mm.



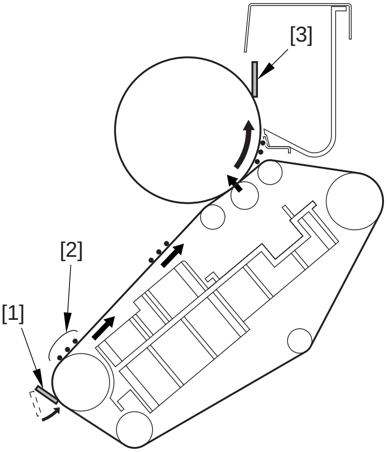
F-7-957

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-958

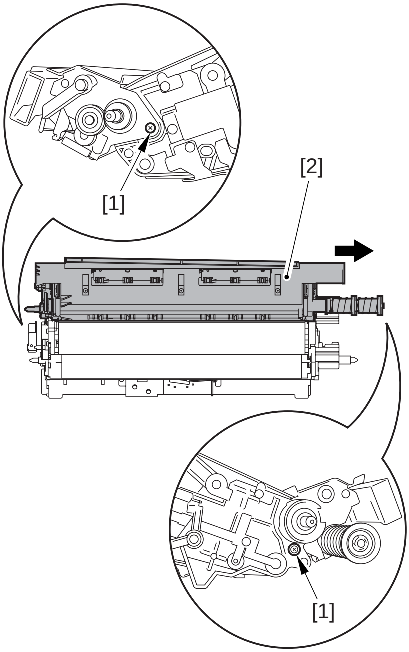
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-959

7.11.35.8 Removing the ITB Cleaning Unit

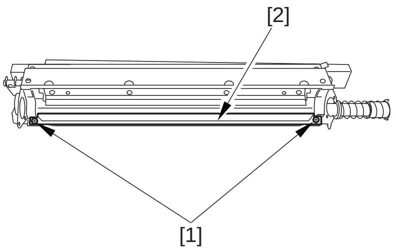
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-960

7.11.35.9 Removing the ITB Scoop-Up Sheet

1) Remove the 2 screws [1], and detach the ITB scoop-up sheet [2].

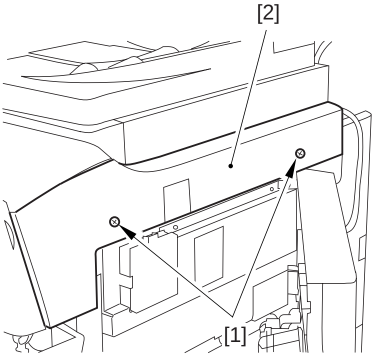


F-7-961

7.11.36 Intermediate Transfer Belt Static Eliminator

7.11.36.1 Removing the Right Cover (upper)

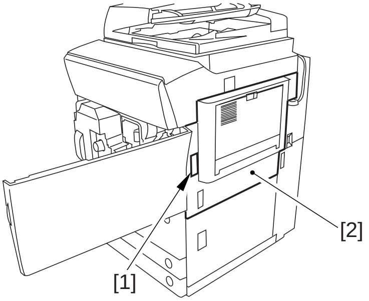
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-962

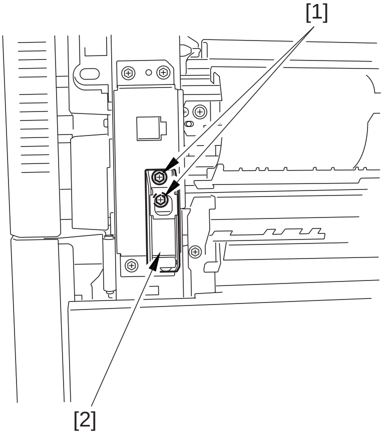
7.11.36.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-963

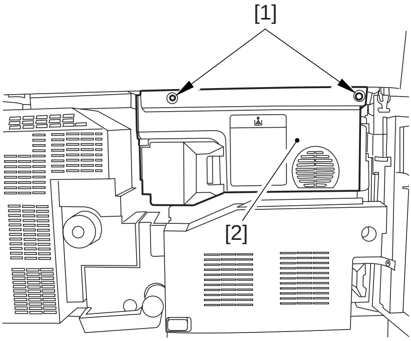
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-964

3) Slide out the fixing/feeding assembly

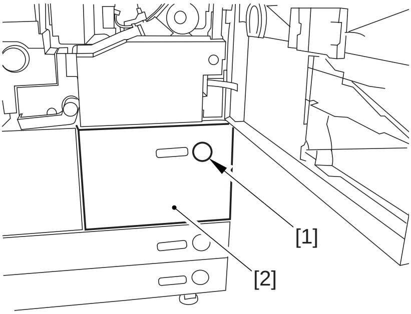
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-965

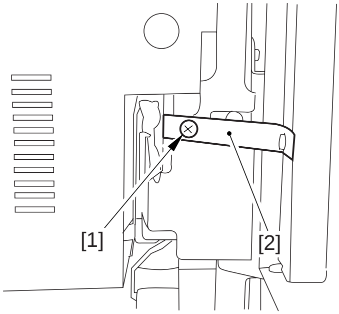
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



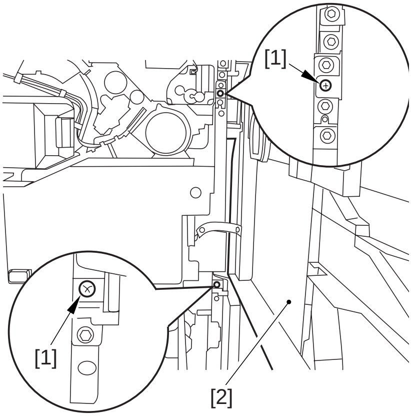
F-7-966

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-967

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

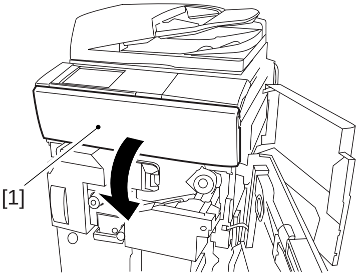


F-7-968

9) Close the right deck.

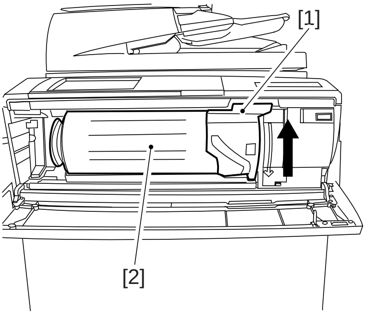
7.11.36.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



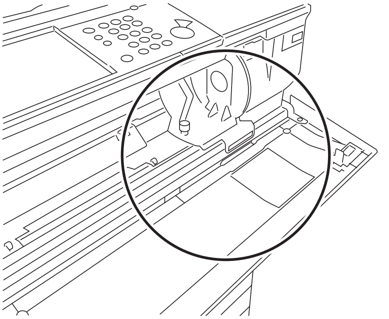
F-7-969

2) Shift down the lever [1], and detach the black toner bottle [2].



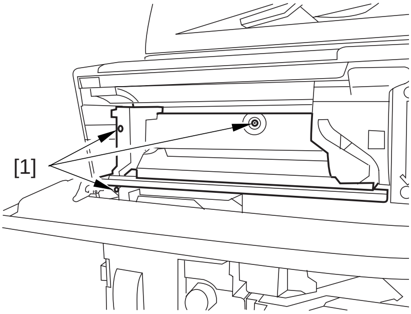
F-7-970

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



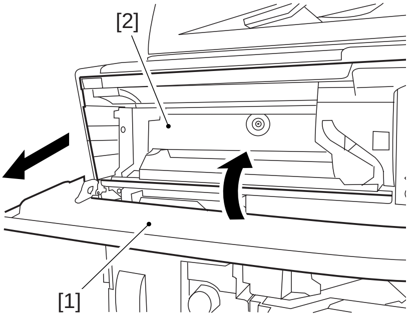
F-7-971

3) Remove the 3 screws [1].



F-7-972

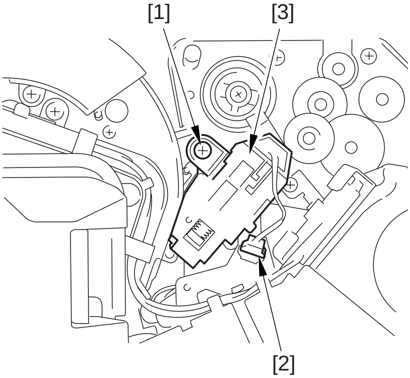
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-973

7.11.36.4 Removing the Pre-Transfer Charging Assembly

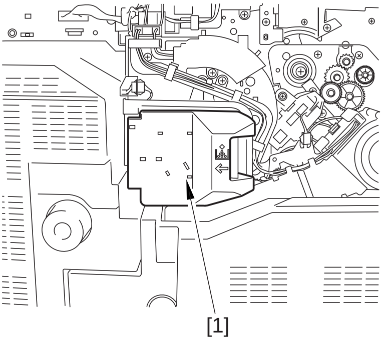
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-974

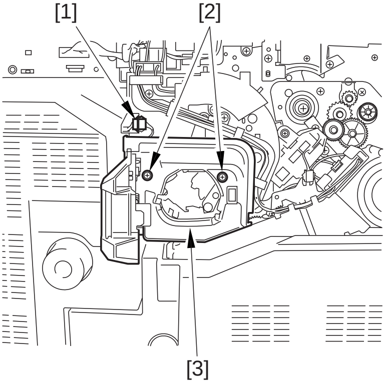
7.11.36.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-975

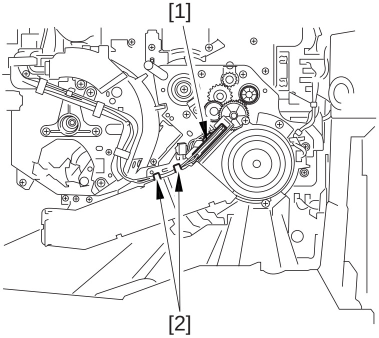
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-976

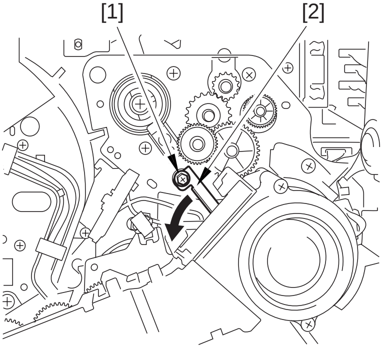
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



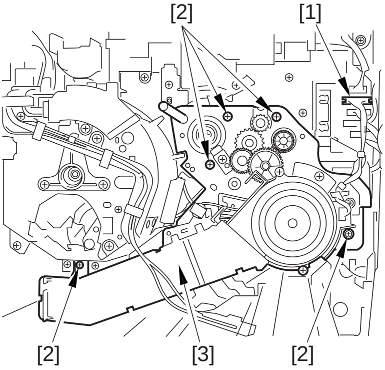
F-7-977

5) Remove the screw [1], and shift down the locking plate [2].



F-7-978

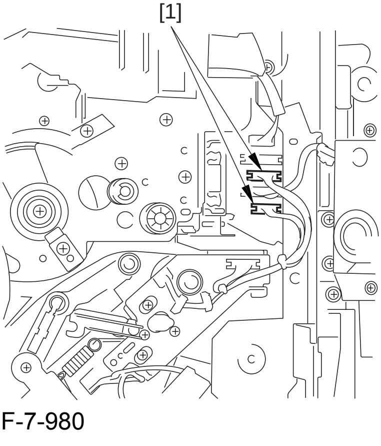
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-979

7.11.36.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

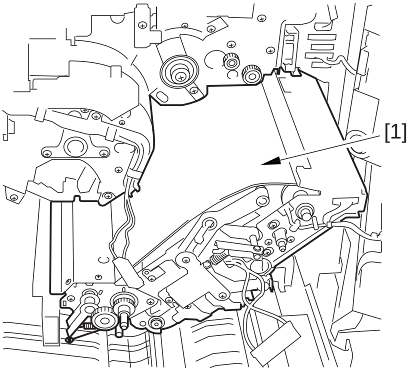


F-7-980

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

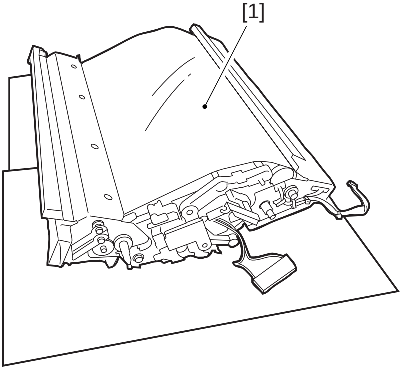
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-981

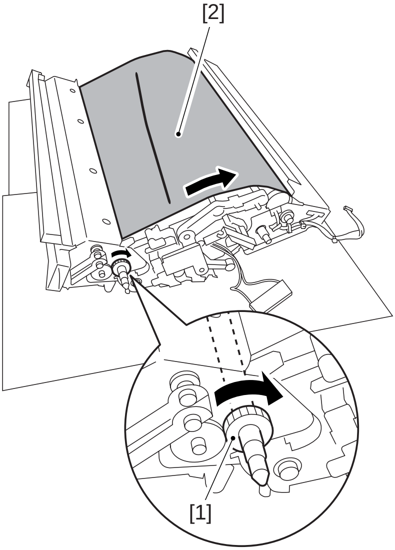
7.11.36.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



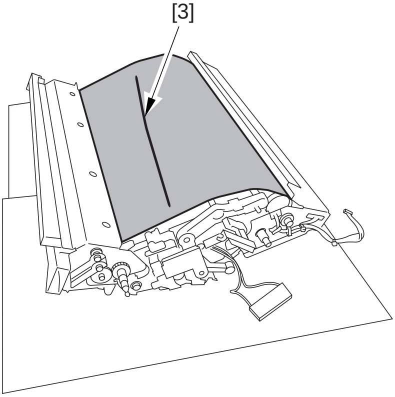
F-7-982

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



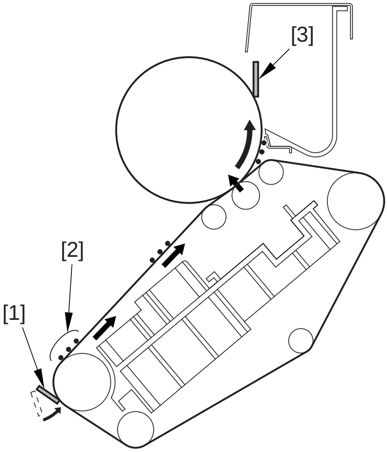
F-7-983

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-984

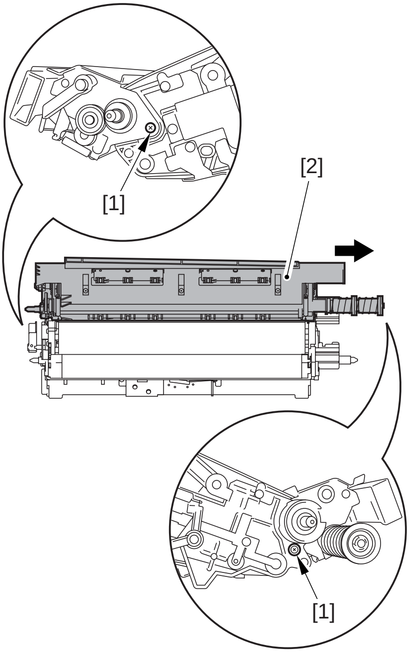
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-985

7.11.36.8 Removing the ITB Cleaning Unit

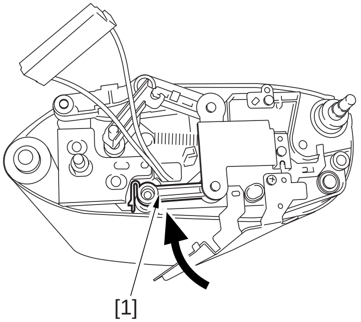
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-986

7.11.36.9 Removing the Patch Image Reading Unit

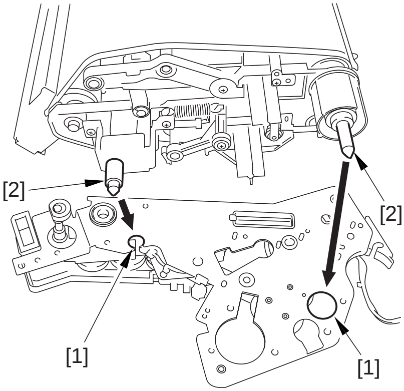
1) Shift the arm [1] shown in the figure to lock it in place; thus releasing the roller (both front and rear).



F-7-987

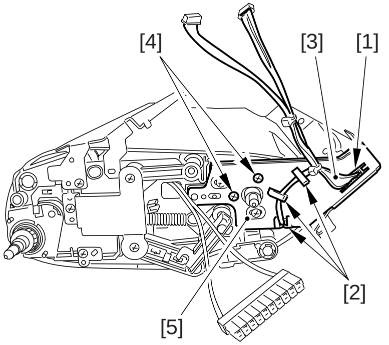
2) Stand the intermediate transfer unit by fitting its 2 pints [2] in the 2 holes of the fixing/feeding assembly.

⚠ Make sure that the ITB cleaner unit has been already removed.



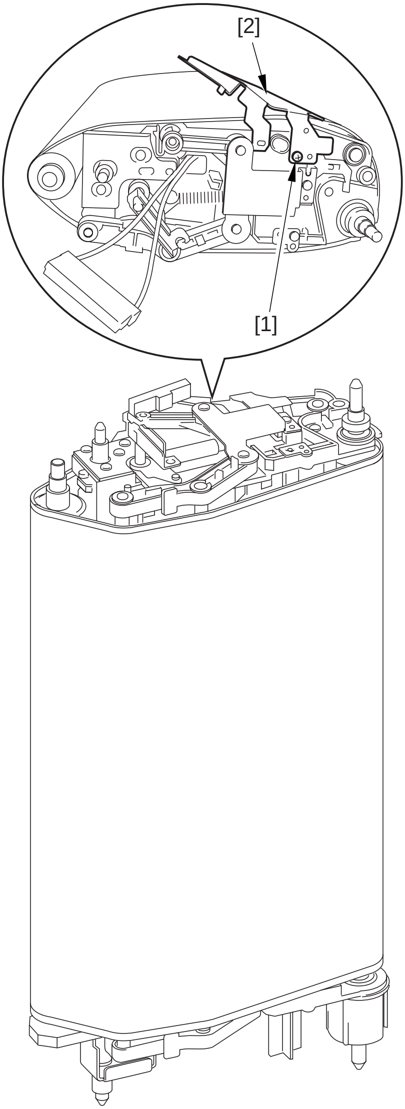
F-7-988

3) Disconnect the connector [1], and free the cable [3] from the 3 cable clamps [2].
4) Remove the 2 screws [4], and detach the patch image reading unit [5].



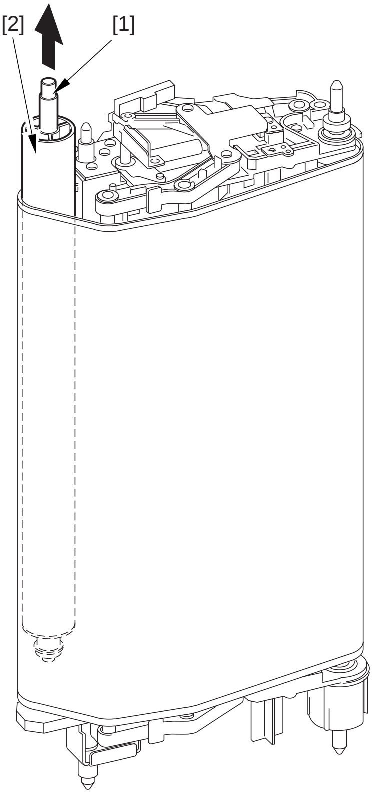
F-7-989

1) Remove the screw [1], and detach the pre-transfer guide [2].



F-7-990

2) Holding the shaft of the idler roller [1], pull the roller upright to detach.

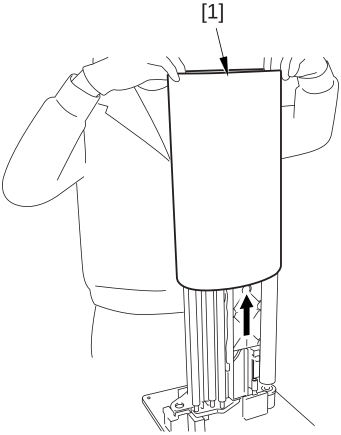


F-7-991

⚠ When detaching the roller, take care not to damage the surface of the ITB by the roller.

7.11.36.10 Removing the ITB

1) Holding the ITB [1] by the edge, pull it straight up to detach.

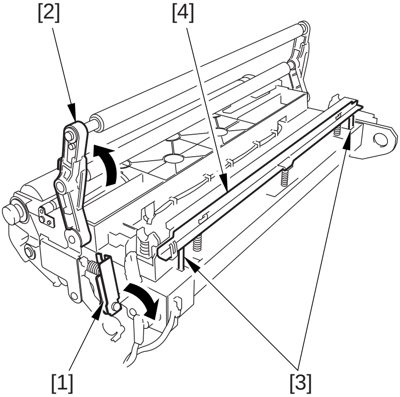


F-7-992

7.11.36.11 Removing the ITB Static Eliminator

1) Shift down the lock lever [1] in the direction of the arrow; then, pull up the roller arm [2].

2) Free the 2 claws [3], and detach the ITB static eliminator [4].



F-7-993

7.11.37 Secondary Transfer Static Eliminator

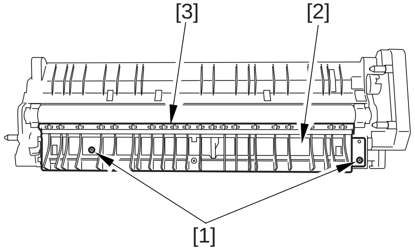
7.11.37.1 Removing the Secondary Transfer Static Eliminator Holder

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

3) Remove the 2 screws [1], and detach the secondary transfer guide [2].

4) Remove the secondary transfer static eliminator holder [3].



F-7-994

7.11.38 Ptential Sensor Unit

7.11.38.1 Outline

The potential sensor unit includes the following 4 parts:

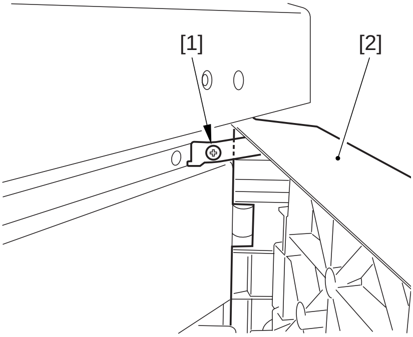
- potential control PCB
- potential sensor
- potential sensor relay harness (between relay connector and potential control PCB)
- potential sensor harness (between potential sensor and relay connector)

⚠ Be sure that the potential sensor and the potential control PCB are always replaced at the same time.

7.11.38.2 Removing the Potential Control PCB

1) Open the upper right cover.

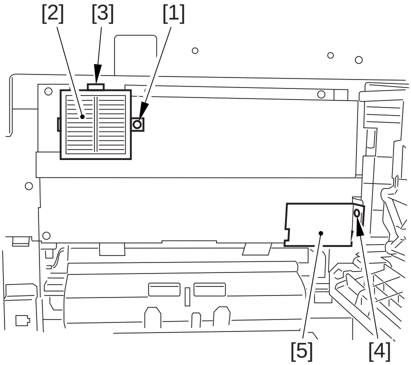
2) Remove the screw [1], and open the upper right cover [1] wider.



F-7-995

3) Remove the screw [1], and detach the filter retainer [2] and the filter [3].

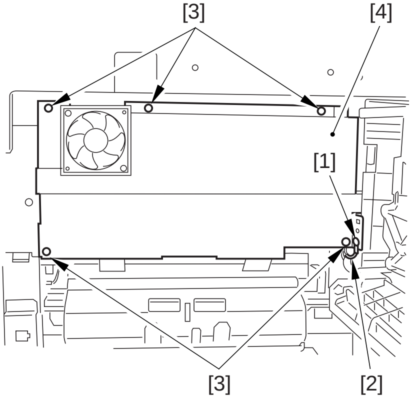
4) Remove the screws [4], and detach the connector cover [4].



F-7-996

5) Remove the screw [1], and detach the grounding wire [2].

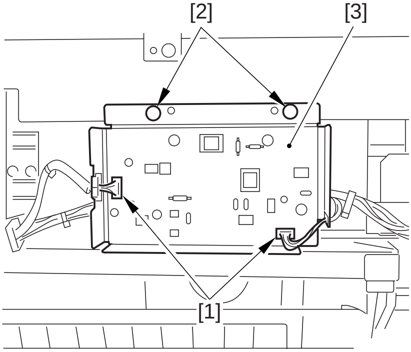
6) Remove the 5 screws [3], and detach the side plate [4].



F-7-997

7) Disconnect the 2 connectors [1].

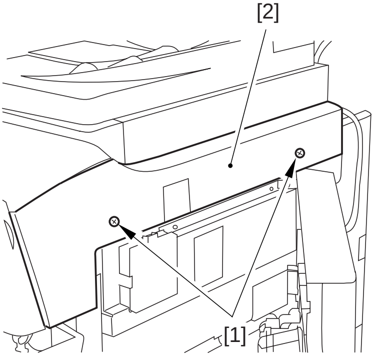
8) Remove the 2 screws [2], and detach the potential control PCB [3].



F-7-998

7.11.38.3 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

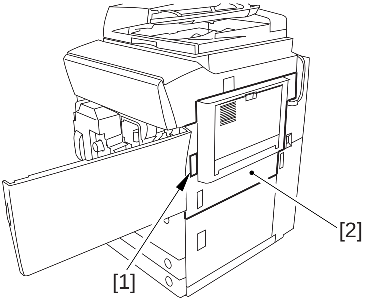


F-7-999

7.11.38.4 Releasing the Front Cover

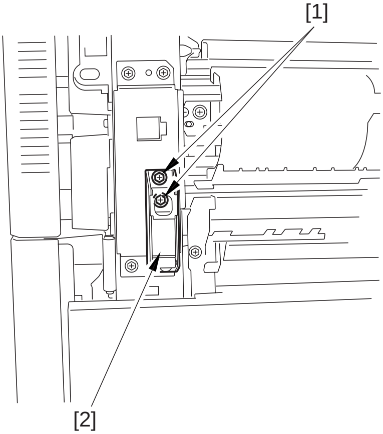
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-1000

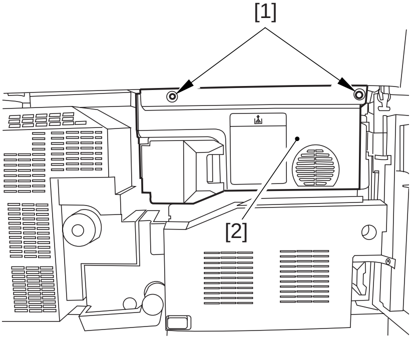
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-1001

3) Slide out the fixing/feeding assembly

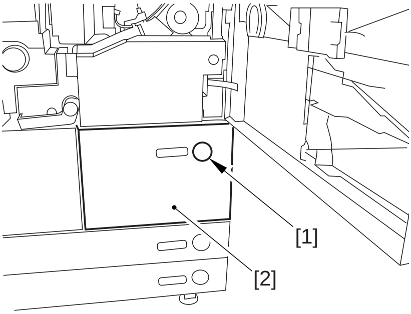
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-1002

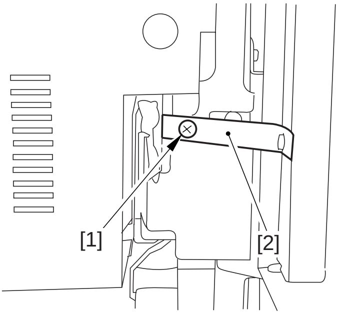
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



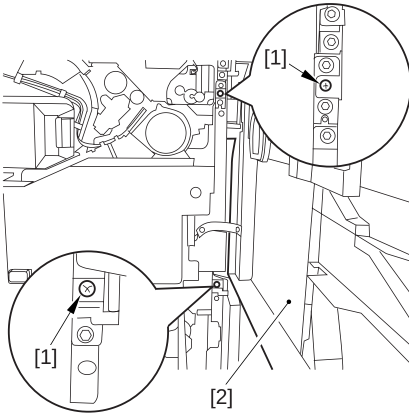
F-7-1003

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-1004

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

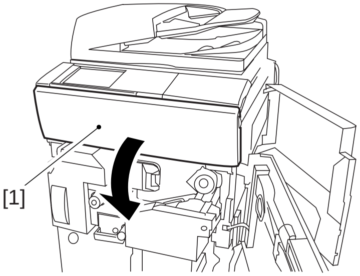


F-7-1005

9) Close the right deck.

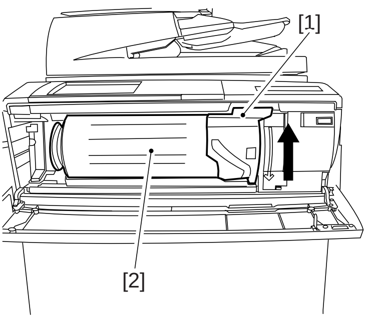
7.11.38.5 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



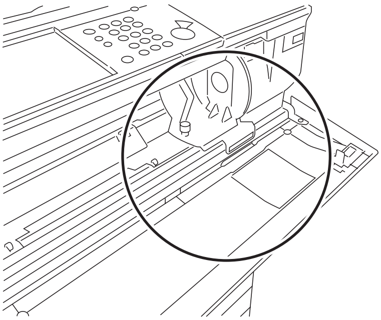
F-7-1006

2) Shift down the lever [1], and detach the black toner bottle [2].



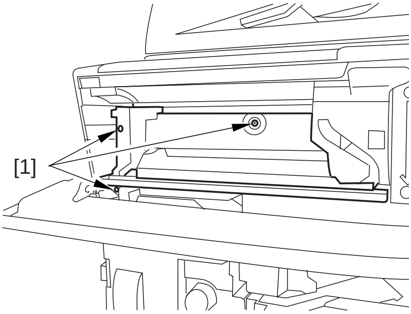
F-7-1007

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



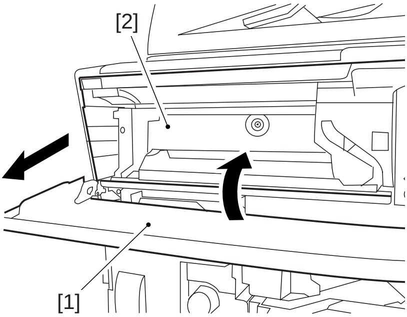
F-7-1008

3) Remove the 3 screws [1].



F-7-1009

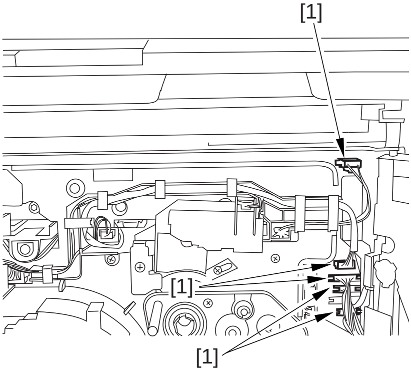
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-1010

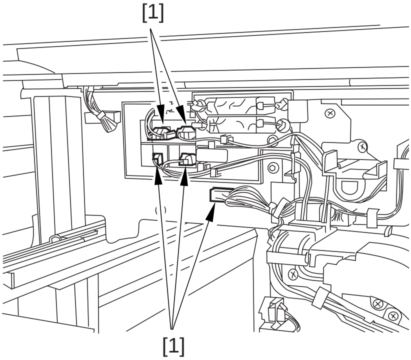
7.11.38.6 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



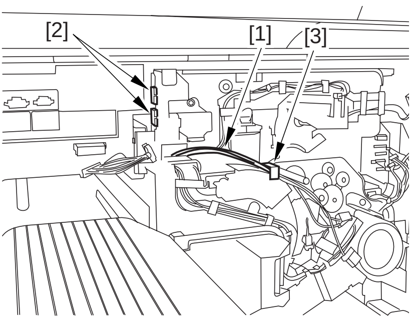
F-7-1011

2) Disconnect the 5 connectors [1] found at the upper left.



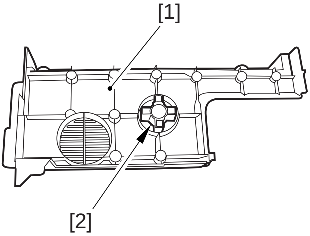
F-7-1012

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-1013

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

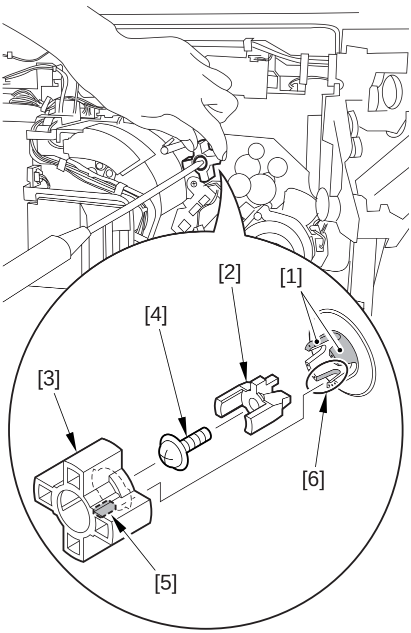


F-7-1014

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



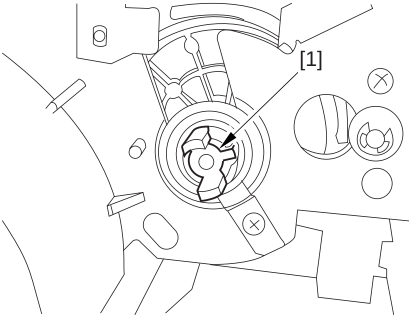
F-7-1015

2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.

In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.

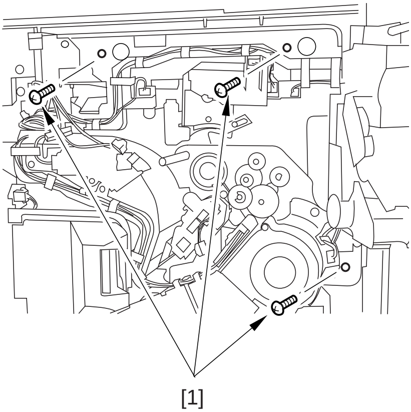
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



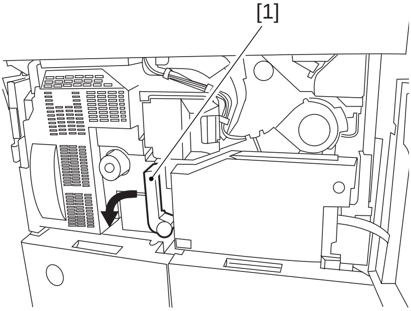
F-7-1016

7) Remove the 3 binding screws (M4x8) [1].



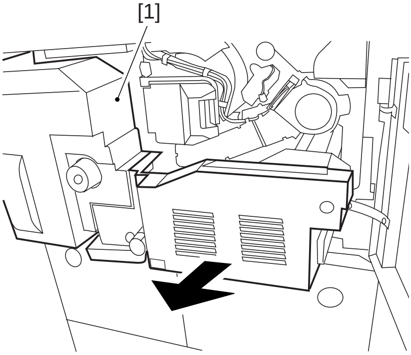
F-7-1017

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



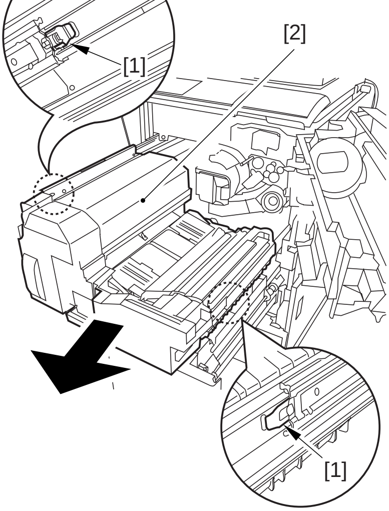
F-7-1018

9) Slide out the fixing/feeding assembly [1] toward the front.



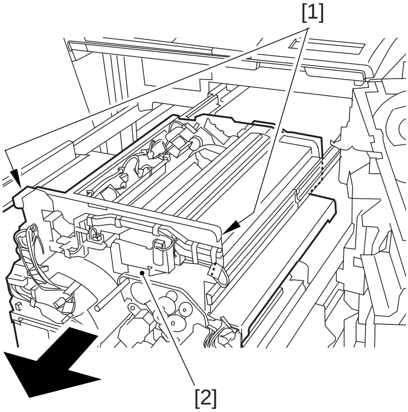
F-7-1019

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-1020

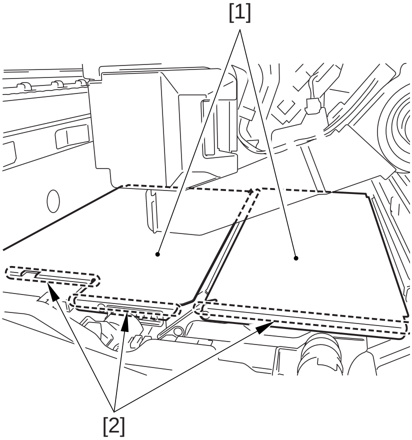
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



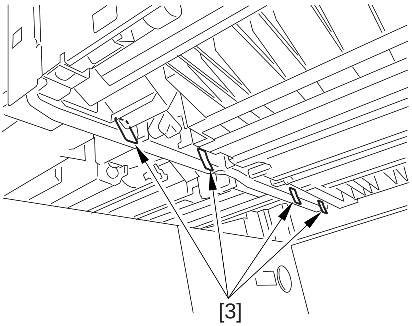
F-7-1021

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-1022



F-7-1023

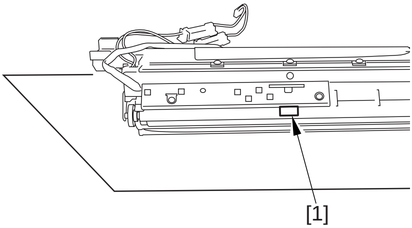
7.11.38.7 Removing the Black Developing Unit

⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore, not to damage the developing cylinder when you have detached the developing unit.

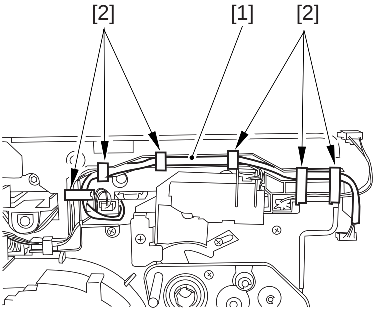
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



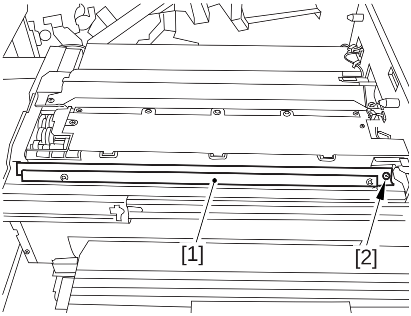
F-7-1024

1) Open the harness guide used to fix the high-voltage cable [1] in place.



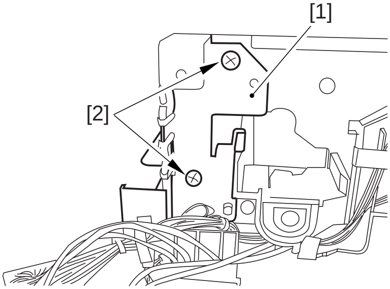
F-7-1025

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



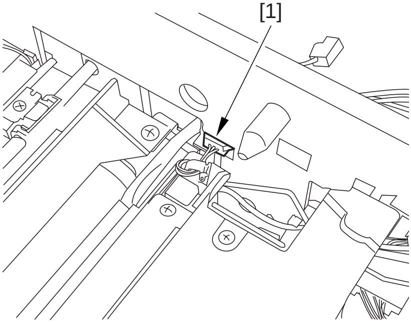
F-7-1026

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



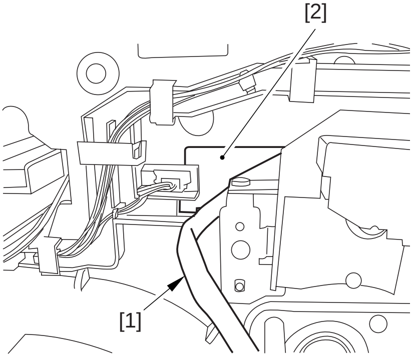
F-7-1027

4) Disconnect the connector [1].



F-7-1028

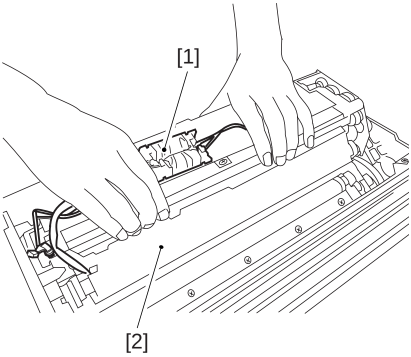
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-1029

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

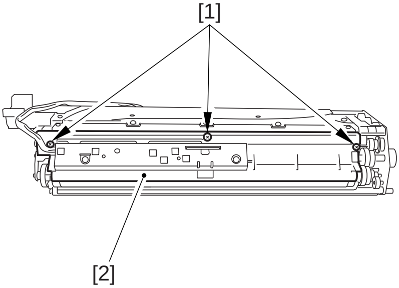
⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-1030

7.11.38.8 Removing the Potential Sensor

1) Remove the 3 screws [1], and detach the potential sensor together with developing cover[2].

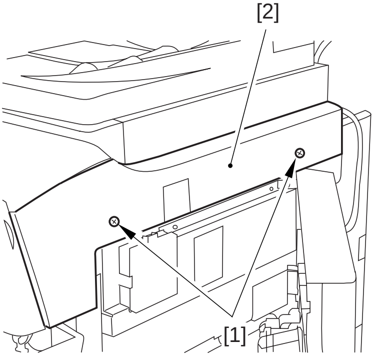


F-7-1031

7.11.39 ATR Sensor Unit

7.11.39.1 Removing the Right Cover (upper)

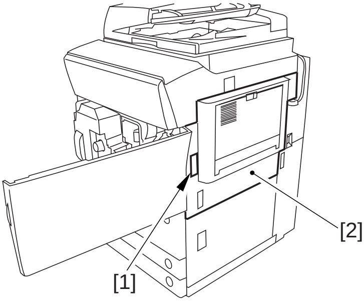
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-7-1032

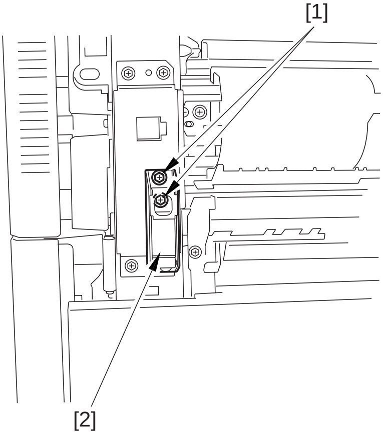
7.11.39.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



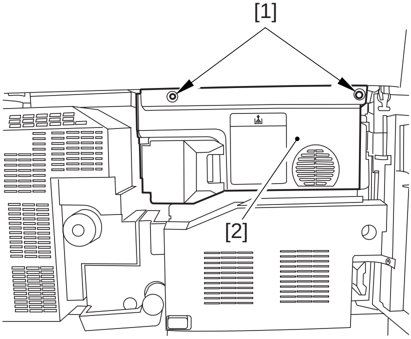
F-7-1033

⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



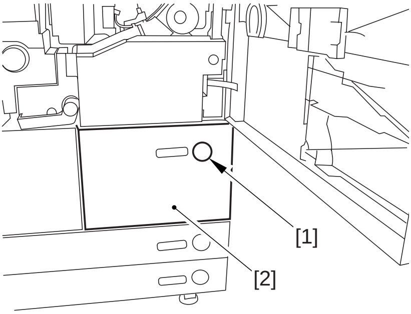
F-7-1034

3) Slide out the fixing/feeding assembly
4) Remove the 2 screws [1], and detach the process unit cover [2].



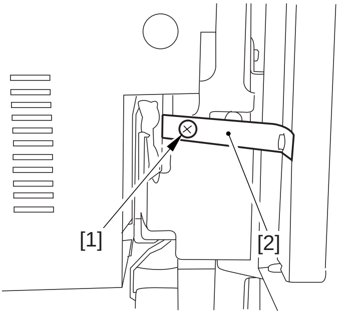
F-7-1035

5) Push in the fixing/feeding assembly, and set the lever in place.
6) Push the release button [1] of the right deck, and slide out the right deck [2].



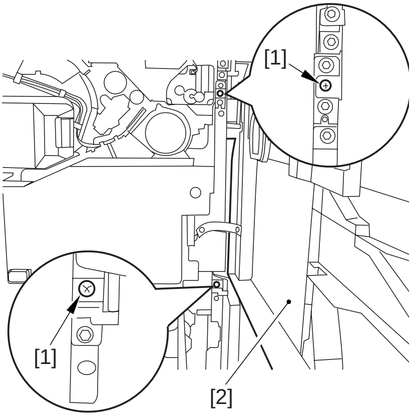
F-7-1036

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-1037

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

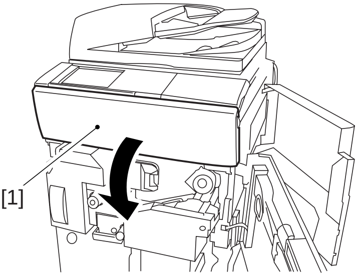


F-7-1038

9) Close the right deck.

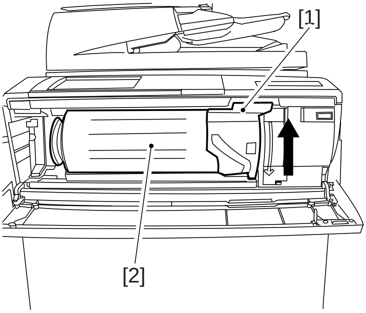
7.11.39.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



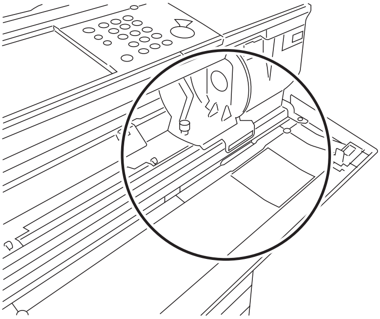
F-7-1039

2) Shift down the lever [1], and detach the black toner bottle [2].



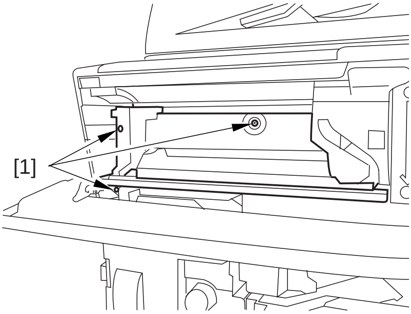
F-7-1040

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



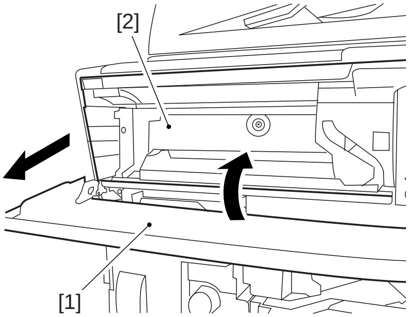
F-7-1041

3) Remove the 3 screws [1].



F-7-1042

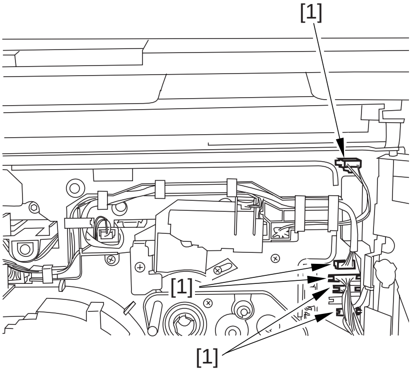
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-1043

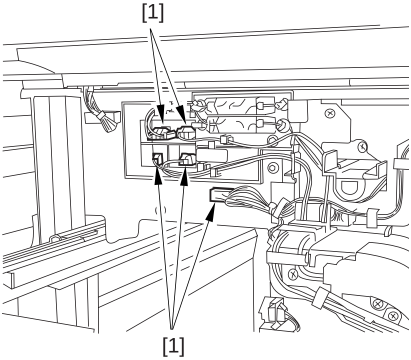
7.11.39.4 Sliding Out the Process Unit

1) Disconnect the 5 connectors [1] found at the upper right.



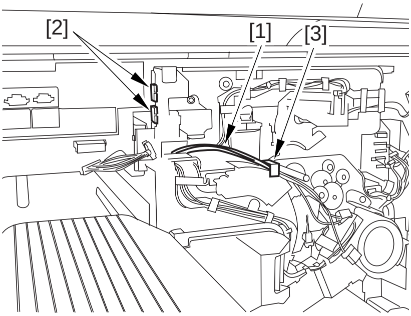
F-7-1044

2) Disconnect the 5 connectors [1] found at the upper left.



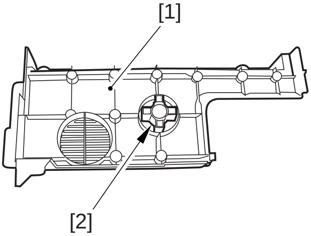
F-7-1045

3) After freeing the high-voltage connector cable [1] from the 2 wire saddles [2], fix the cable in place using the cable hook [3].



F-7-1046

4) Take out the process unit cover [1] from the shipping box, and detach the drum stop tool [2] from the back of the cover.

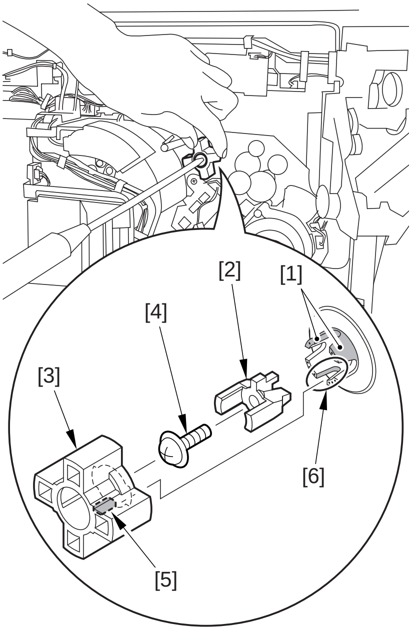


F-7-1047

5) While forcing the drum stop tool [3] against the drum fixing member [2] of the drum shift [1], remove the fixing screw [4].

⚠

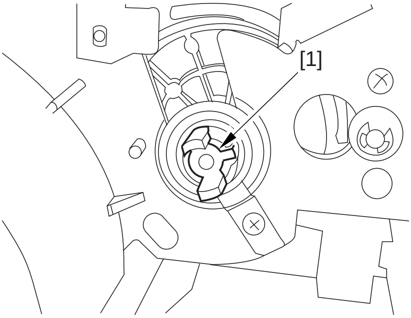
1: Be sure to match the protrusion [5] of the drum fixing member and the protrusion [6] of the drum stop tool.



F-7-1048

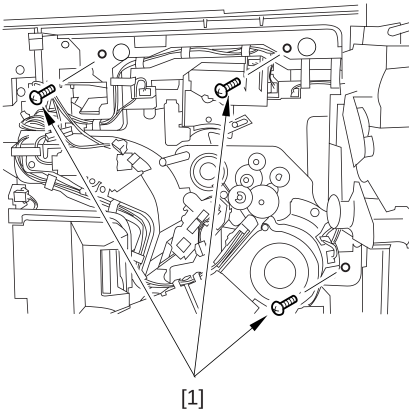
2: When drawing out the process unit, be sure to find out the position of the protrusion [1] of the drum fixing member in relation to the marking [2] on the drum flange.
In the example in the figure, the marking [2] on the drum flange is at "." on the left and at ".." on the right in relation to the protrusion [2] of the drum fixing member.
Moreover, when you close the process unit, it is important that the spatial relationship between the protrusion of the drum fixing member and the marking on the drum flange is as it was before you drew out the unit.

6) Using a pair of fine pliers, remove the drum fixing member [1].



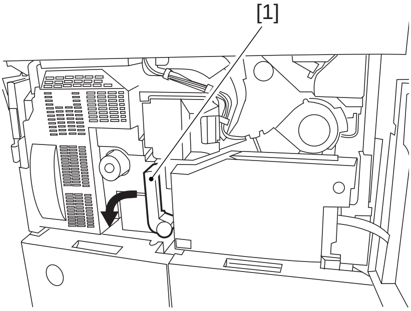
F-7-1049

7) Remove the 3 binding screws (M4x8) [1].



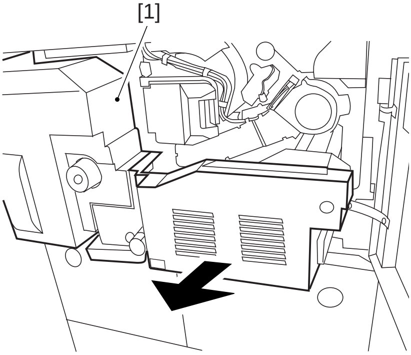
F-7-1050

8) Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow.



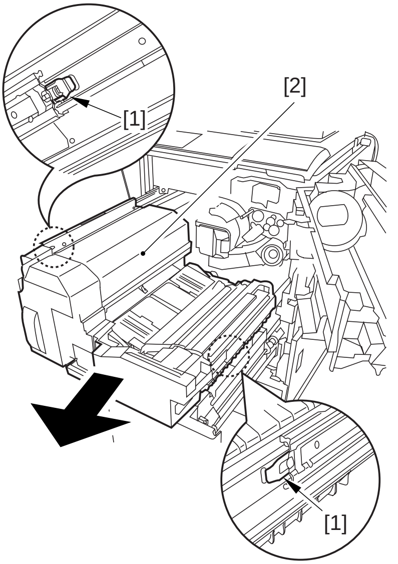
F-7-1051

9) Slide out the fixing/feeding assembly [1] toward the front.



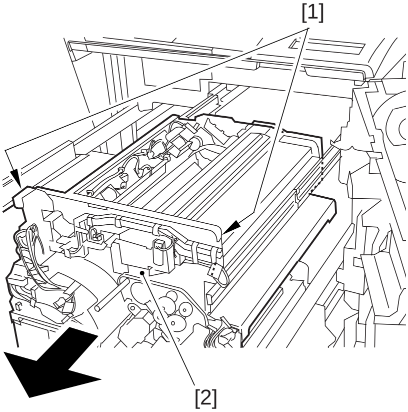
F-7-1052

10) While pushing on the 2 hooks [1] found on both sides of the fixing/feeding assembly, fully slide out the fixing/feeding assembly [2].



F-7-1053

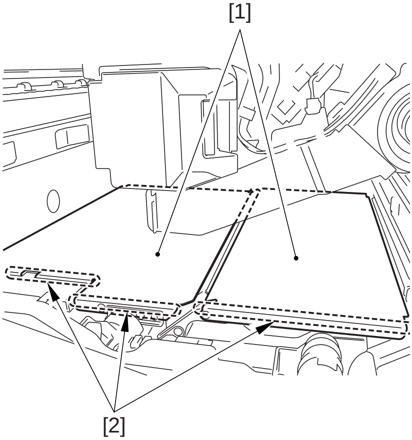
11) Slightly lift both ends [1] of the process unit, and fully slide out the process unit [2].



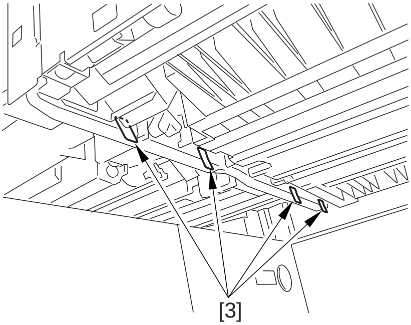
F-7-1054

When you have slid out the process unit, check to see if any of the following parts is soiled with toner before fitting it back in; if soiled, dry wipe the part:

- entire surface of the deck top panel [1]
- front bend of the deck top panel [2]
- lower rear sheet (4 locations) of the fixing/feeding assembly [3].



F-7-1055



F-7-1056

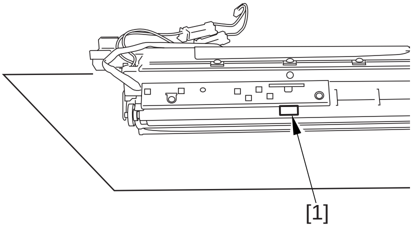
7.11.39.5 Removing the Black Developing Unit

⚠ Points to Note About the Work

1 The machine's developing unit is not equipped with a developing cylinder protection cover. Take full care, therefore, not to damage the developing cylinder when you have detached the developing unit.

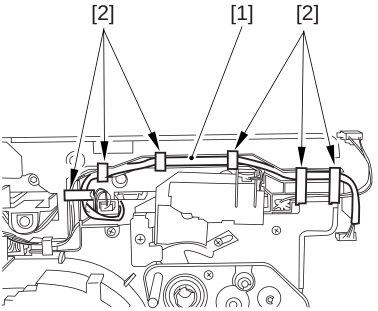
The waste toner collecting inside the machine can move into the fixing/feeding assembly through the outlet; be sure to place paper under the process unit for the work.

2. The machine's black developing unit is equipped with a potential sensor. Do not touch the sensor window [1] indicated in the figure. Moreover, take care not to drop the black developing assembly or otherwise subject it to impact so as to avoid damage to the potential sensor.



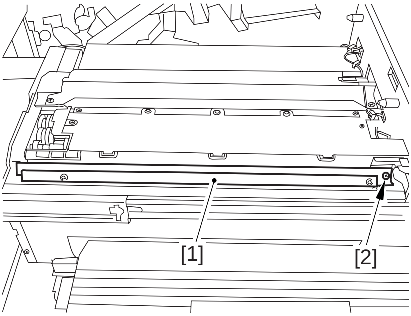
F-7-1057

1) Open the harness guide used to fix the high-voltage cable [1] in place.



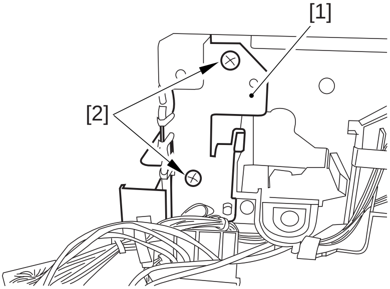
F-7-1058

2) Remove the screw [2], and detach the black developing assembly locking plate [1].



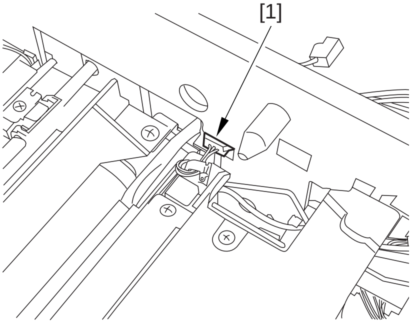
F-7-1059

3) Remove the 2 screws [2], and detach the black developing assembly joint plate [1].



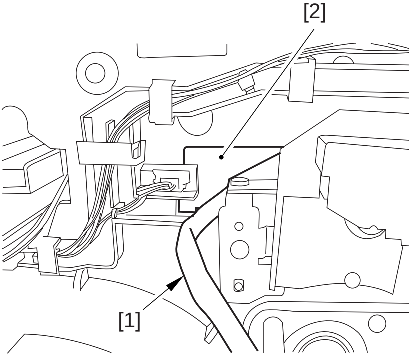
F-7-1060

4) Disconnect the connector [1].



F-7-1061

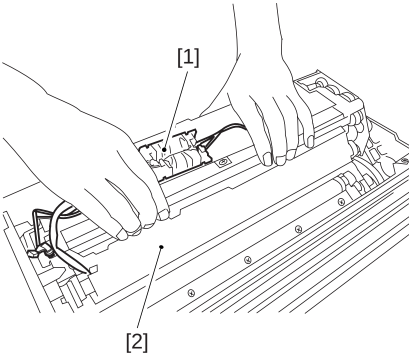
5) Push in the high-voltage cable [1] through the opening [2] indicated in the figure.



F-7-1062

6) While holding the high-voltage cable [1] in place as shown, detach the black developing assembly [2] in upward direction.

⚠ When detaching the black developing assembly, be sure to work with the high-voltage cable kept at the top of the assembly so that its connector will not damage the surface of the photosensitive drum.



F-7-1063

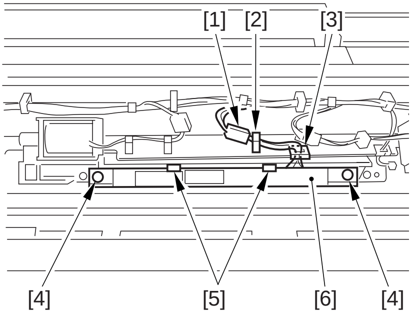
7.11.39.6 Removing the ATR Sensor Unit

1) Disconnect the connector [1].

2) Open the clamp [2], and free the harness for the wire guide [3].

3) Remove the 2 screws [4].

4) Free the 2 lock claws [5], and detach the ATR sensor unit [6].

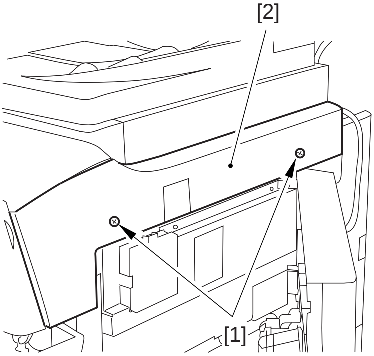


F-7-1064

7.11.40 Patch Image Sensor

7.11.40.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

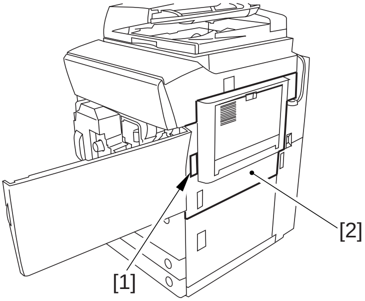


F-7-1065

7.11.40.2 Releasing the Front Cover

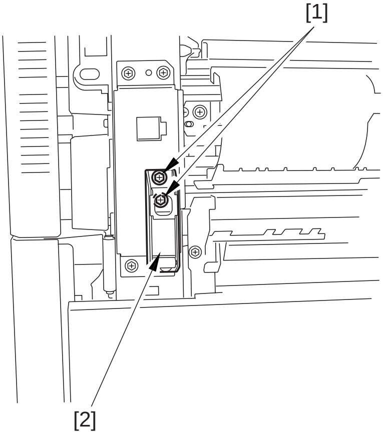
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-1066

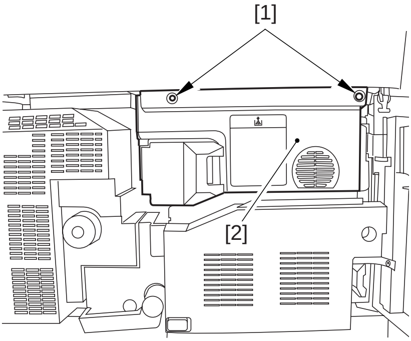
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-1067

3) Slide out the fixing/feeding assembly

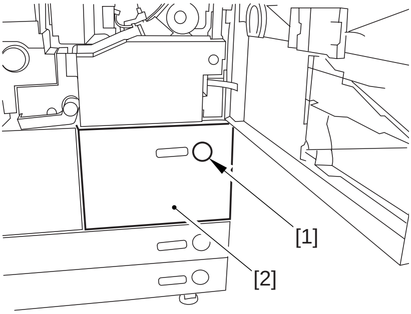
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-1068

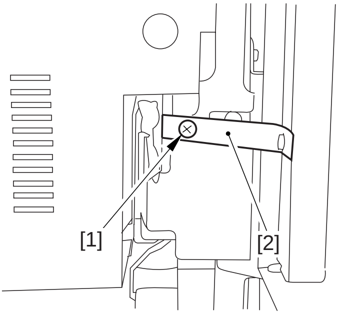
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



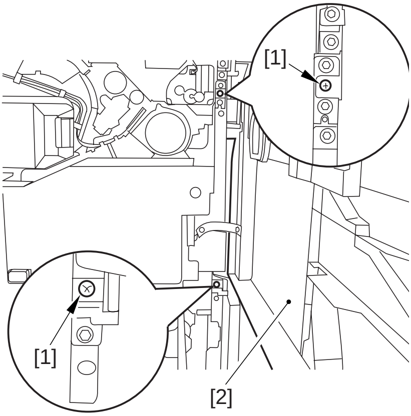
F-7-1069

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-1070

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

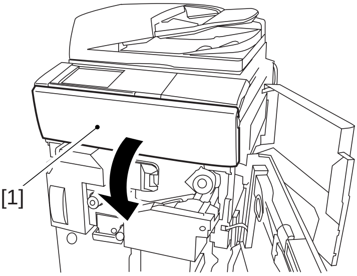


F-7-1071

9) Close the right deck.

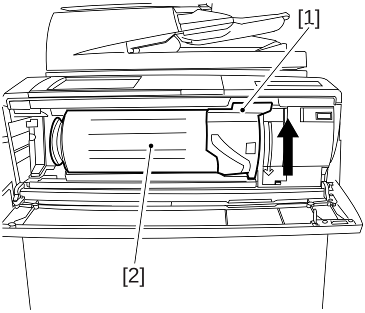
7.11.40.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



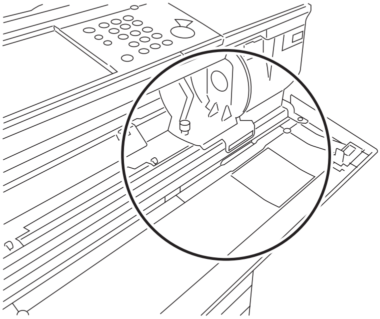
F-7-1072

2) Shift down the lever [1], and detach the black toner bottle [2].



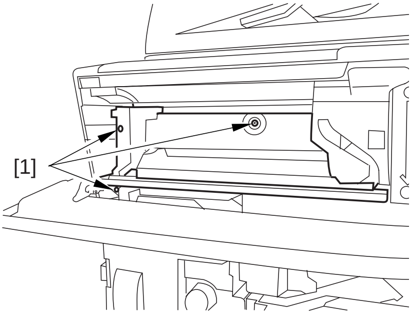
F-7-1073

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



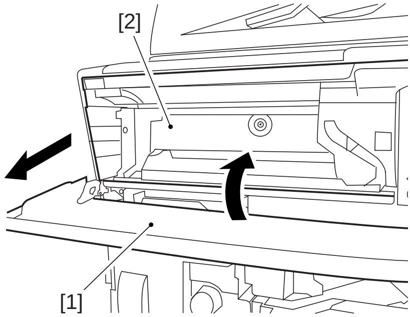
F-7-1074

3) Remove the 3 screws [1].



F-7-1075

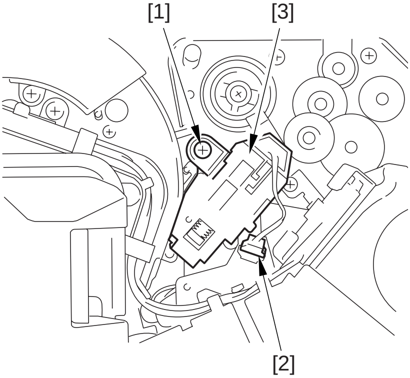
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-1076

7.11.40.4 Removing the Pre-Transfer Charging Assembly

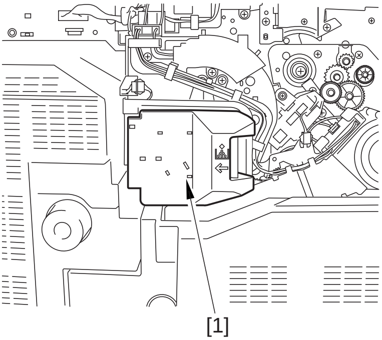
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-1077

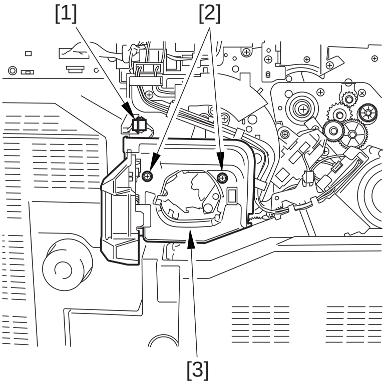
7.11.40.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-1078

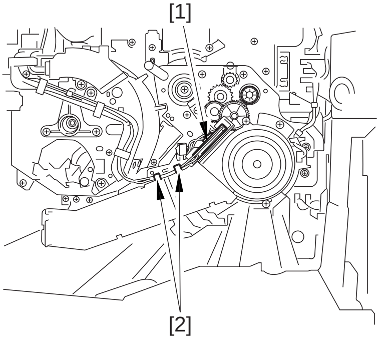
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-1079

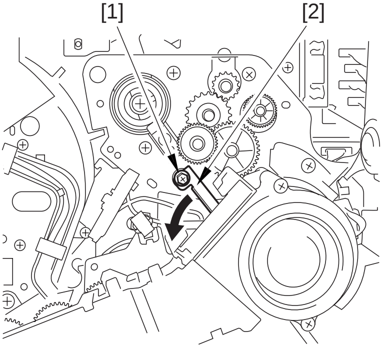
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



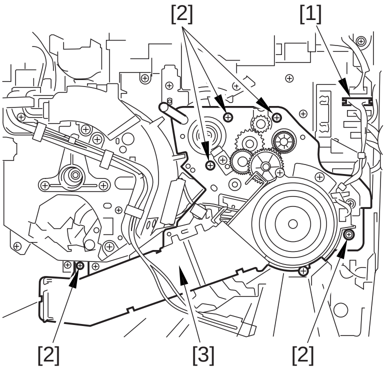
F-7-1080

5) Remove the screw [1], and shift down the locking plate [2].



F-7-1081

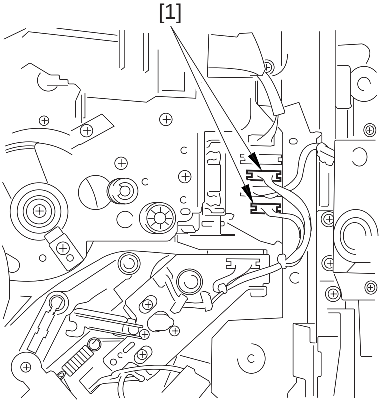
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-1082

7.11.40.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

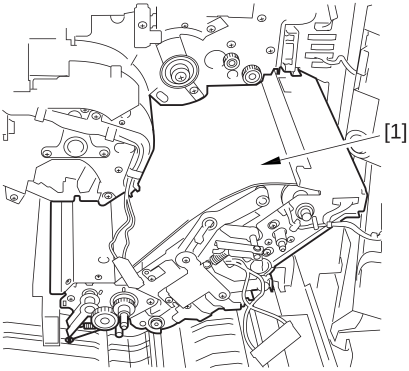


F-7-1083

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

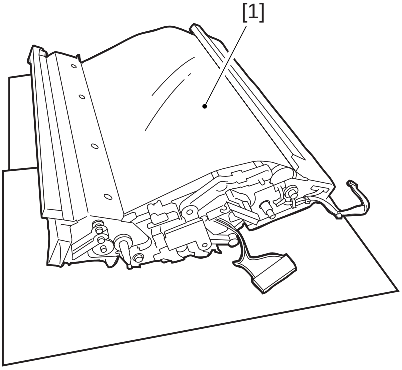
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-1084

7.11.40.7 Cleaning the Surface of the Intermediate Transfer Unit

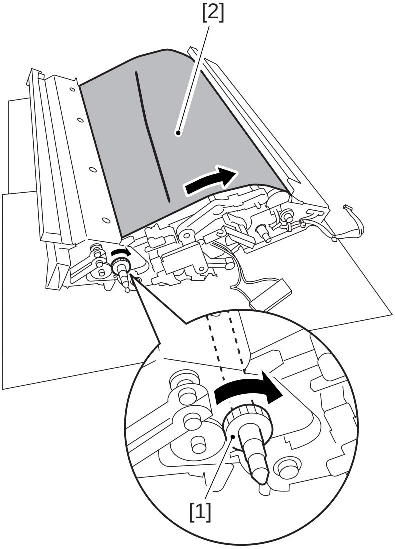
1) Place the ITB unit [1] on paper for protection.



F-7-1085

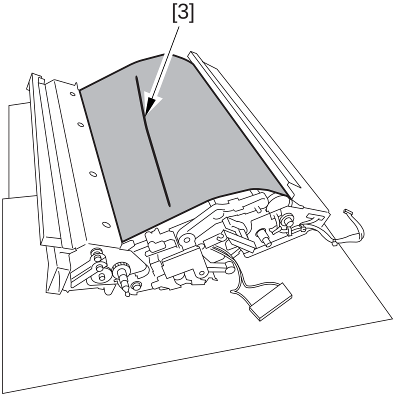
2) Turn the drive gear [1] by hand in the direction of the arrow to move the

intermediate transfer belt [2] about 50 mm.



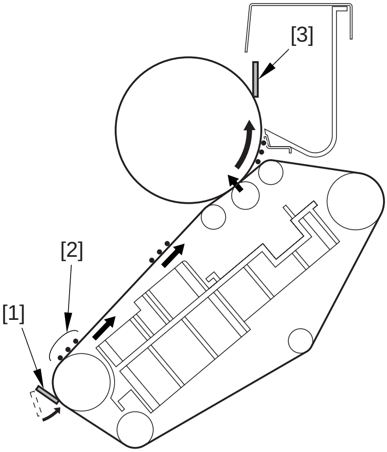
F-7-1086

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-1087

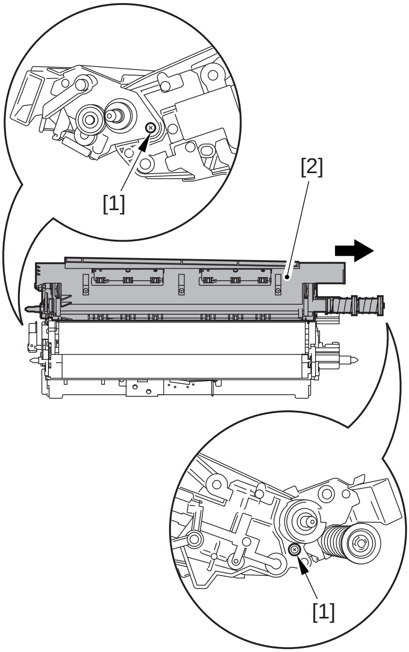
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-1088

7.11.40.8 Removing the ITB Cleaning Unit

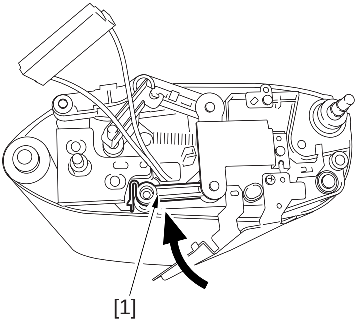
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-1089

7.11.40.9 Removing the Patch Image Reading Unit

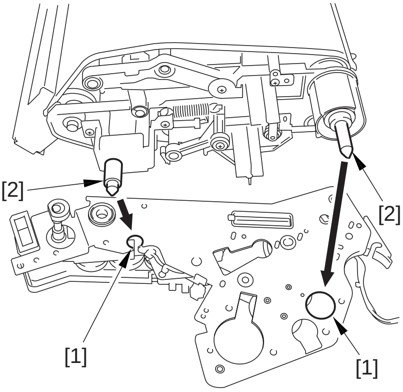
1) Shift the arm [1] shown in the figure to lock it in place; thus releasing the roller (both front and rear).



F-7-1090

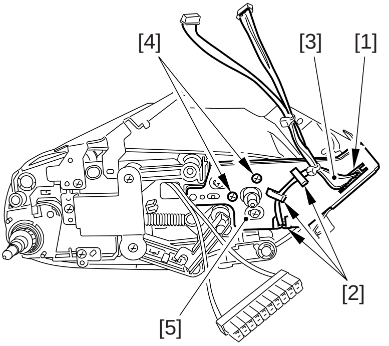
2) Stand the intermediate transfer unit by fitting its 2 pints [2] in the 2 holes of the fixing/feeding assembly.

⚠ Make sure that the ITB cleaner unit has been already removed.



F-7-1091

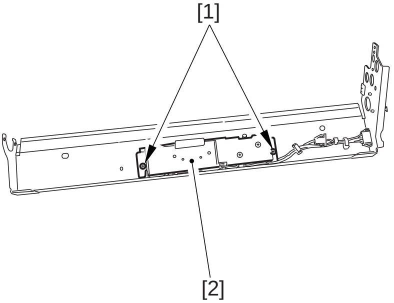
3) Disconnect the connector [1], and free the cable [3] from the 3 cable clamps [2].
4) Remove the 2 screws [4], and detach the patch image reading unit [5].



F-7-1092

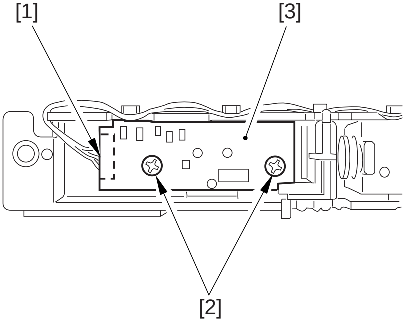
7.11.40.10 Removing the Patch Image Reading Sensor

1) Remove the 2 screws [1], and detach the pattern reader holder [2].



F-7-1093

2) Remove the 2 screws [1], and detach the connector [2]; then, detach the patch image reading sensor [3].

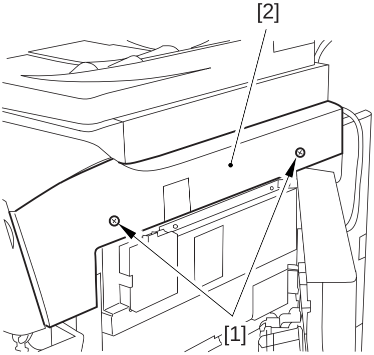


F-7-1094

7.11.41 Idle Roller

7.11.41.1 Removing the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

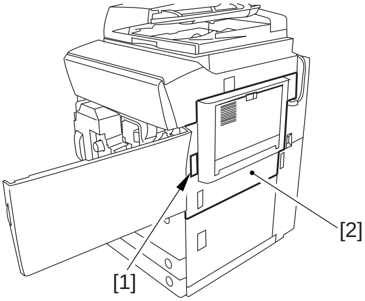


F-7-1095

7.11.41.2 Releasing the Front Cover

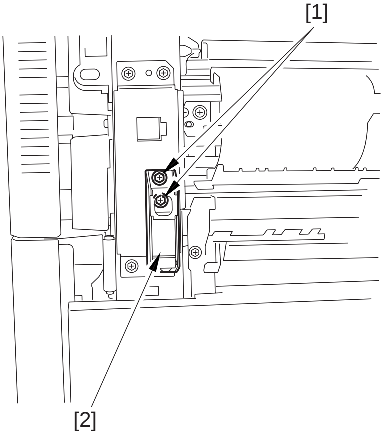
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-1096

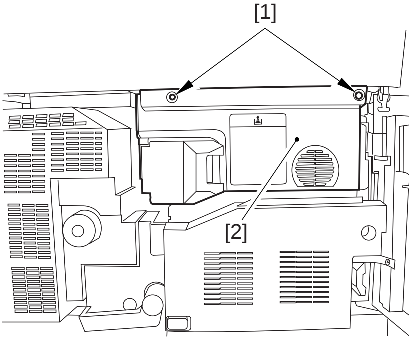
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-1097

3) Slide out the fixing/feeding assembly

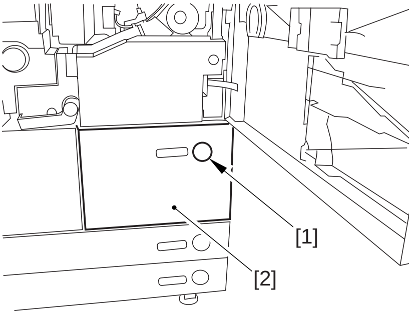
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-1098

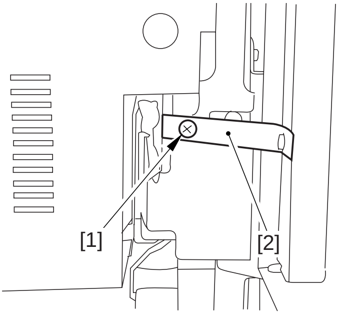
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



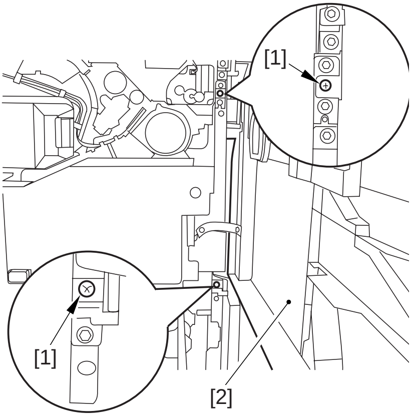
F-7-1099

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-1100

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

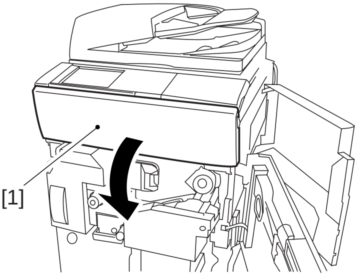


F-7-1101

9) Close the right deck.

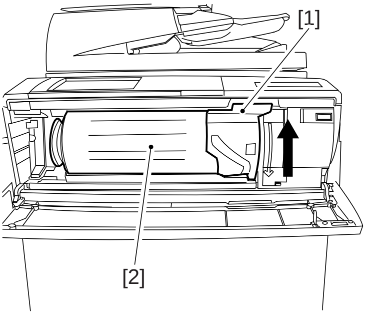
7.11.41.3 Removing the Hopper Assembly

1) Open the black toner supply cover [1].



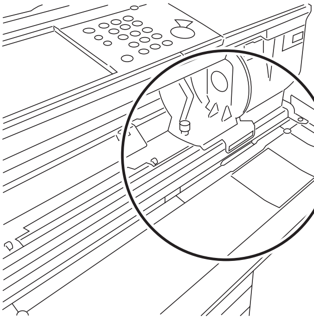
F-7-1102

2) Shift down the lever [1], and detach the black toner bottle [2].



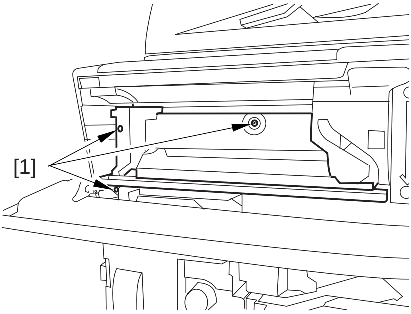
F-7-1103

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



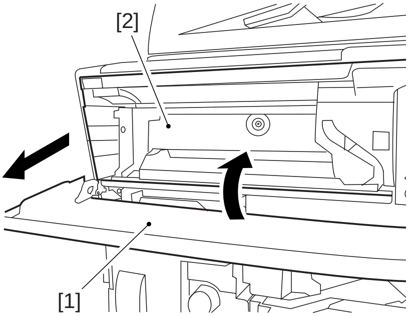
F-7-1104

3) Remove the 3 screws [1].



F-7-1105

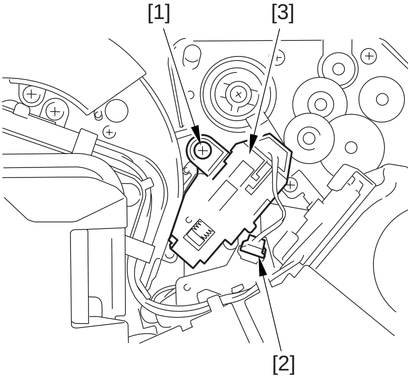
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-1106

7.11.41.4 Removing the Pre-Transfer Charging Assembly

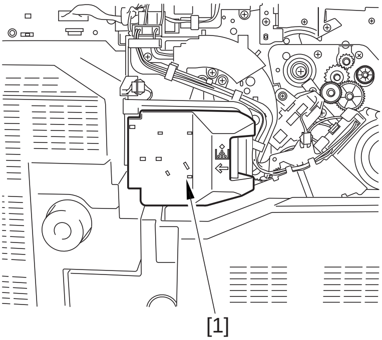
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-1107

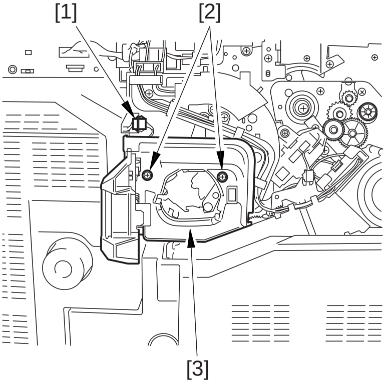
7.11.41.5 Removing Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-1108

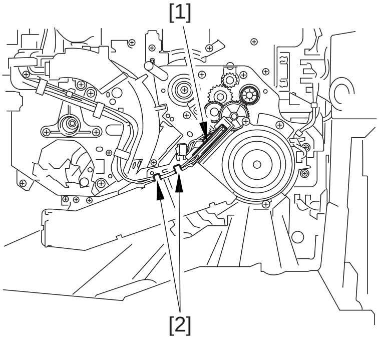
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-1109

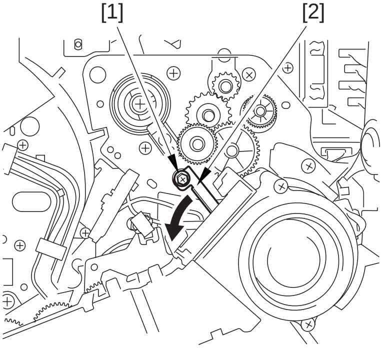
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



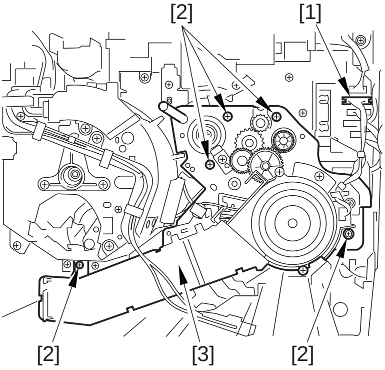
F-7-1110

5) Remove the screw [1], and shift down the locking plate [2].



F-7-1111

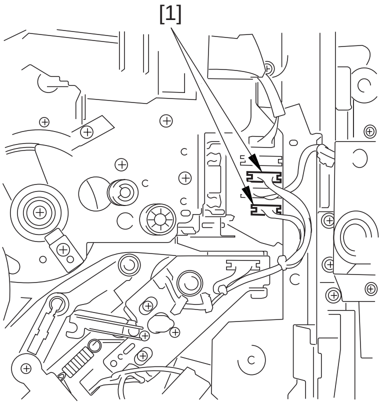
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-1112

7.11.41.6 Remove the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].

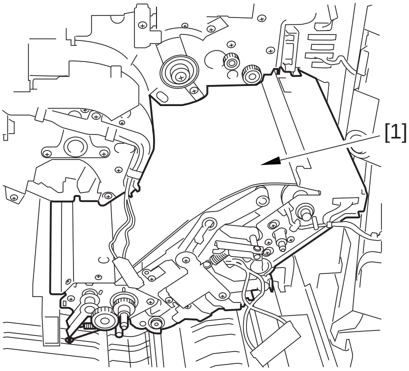


F-7-1113

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

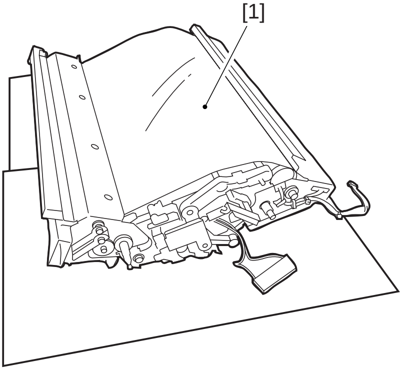
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-1114

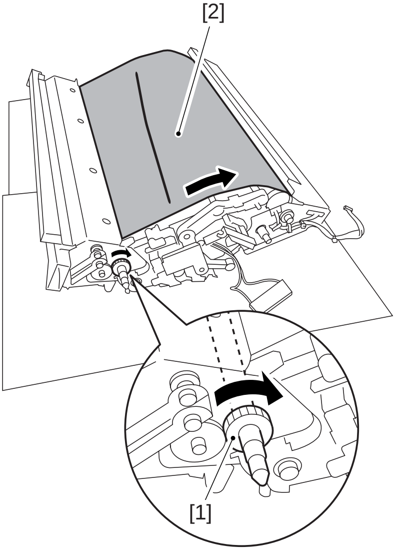
7.11.41.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



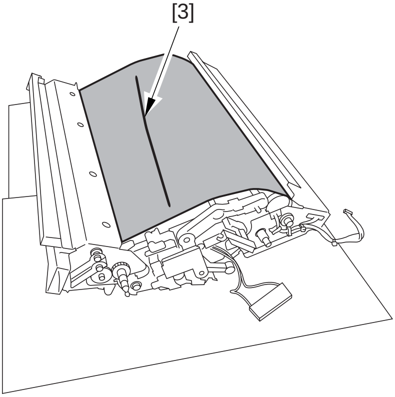
F-7-1115

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



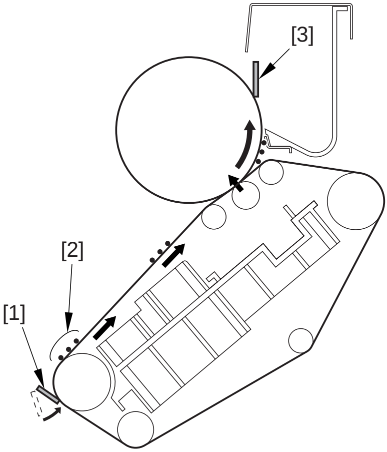
F-7-1116

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-1117

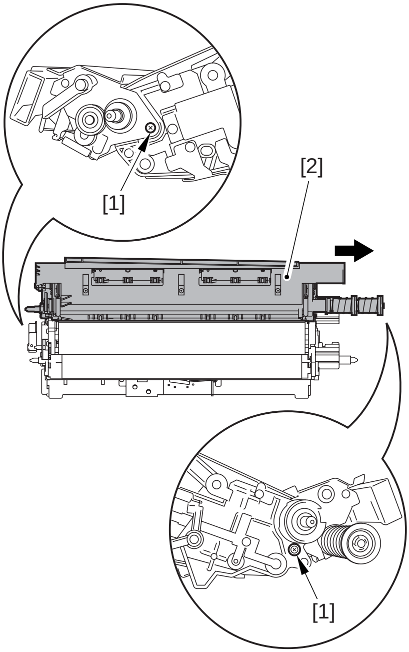
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-1118

7.11.41.8 Removing the ITB Cleaning Unit

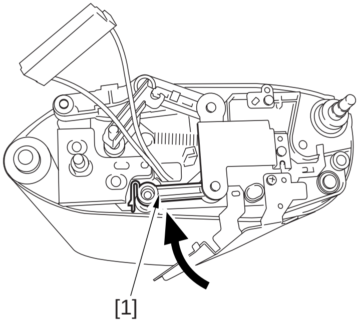
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-1119

7.11.41.9 Remove the Patch Image Reading Unit

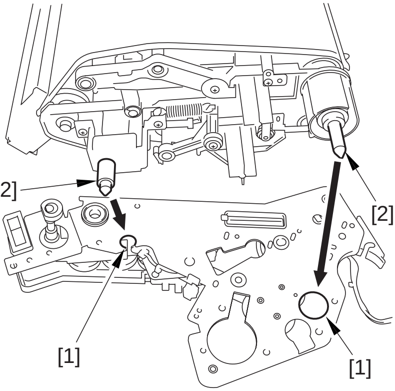
1) Shift the arm [1] shown in the figure to lock it in place; thus releasing the roller (both front and rear).



F-7-1120

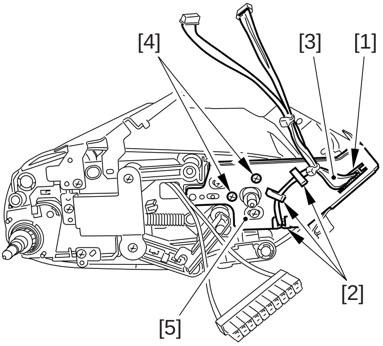
2) Stand the intermediate transfer unit by fitting its 2 pints [2] in the 2 holes of the fixing/feeding assembly.

⚠ Make sure that the ITB cleaner unit has been already removed.



F-7-1121

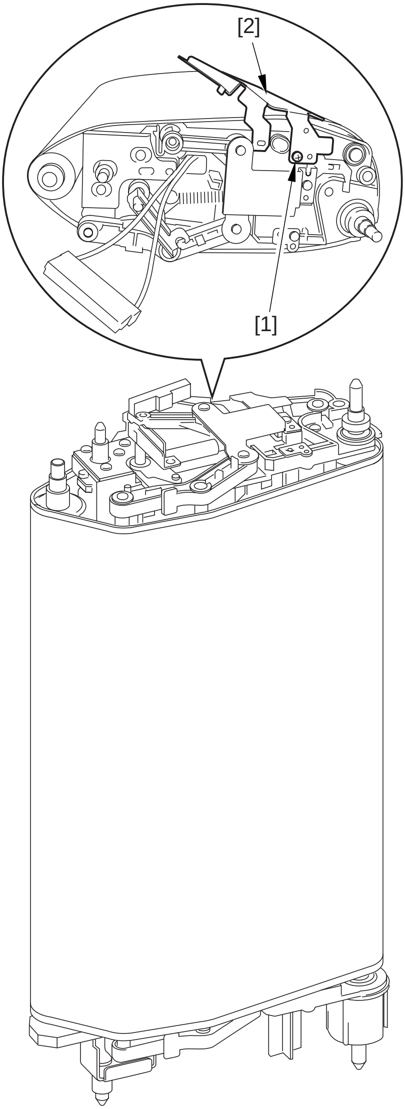
3) Disconnect the connector [1], and free the cable [3] from the 3 cable clamps [2].
4) Remove the 2 screws [4], and detach the patch image reading unit [5].



F-7-1122

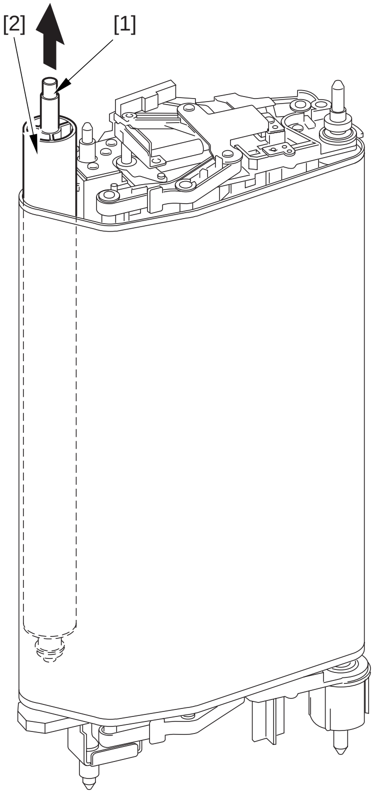
7.11.41.10 Removing the Idler Roller

1) Remove the screw [1], and detach the pre-transfer guide [2].



F-7-1123

2) Holding the shaft of the idler roller [1], pull the roller upright to detach.

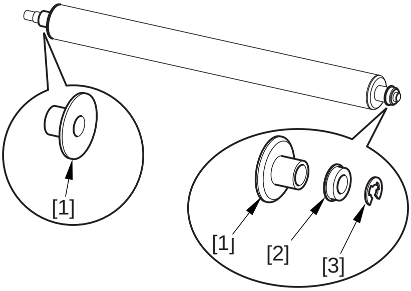


F-7-1124

⚠ When detaching the roller, take care not to damage the surface of the ITB by the roller.

7.11.41.11 Remove the Idler Roller

1) Remove the 2 bushings [1], bearing [2], and E-ring from the idler roller.

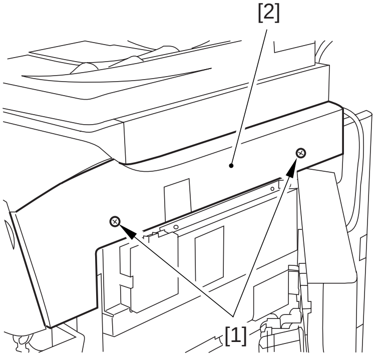


F-7-1125

7.11.42 Patch Image Reading Sensor Shutter Solenoid

7.11.42.1 Remove the Right Cover (upper)

1) Remove the 2 screws [1], and detach the right cover (upper) [2].

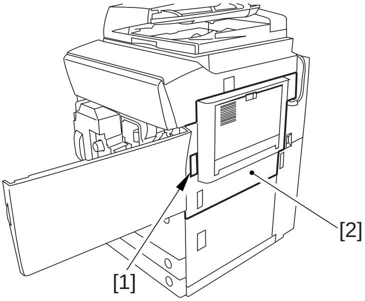


F-7-1126

7.11.42.2 Releasing the Front Cover

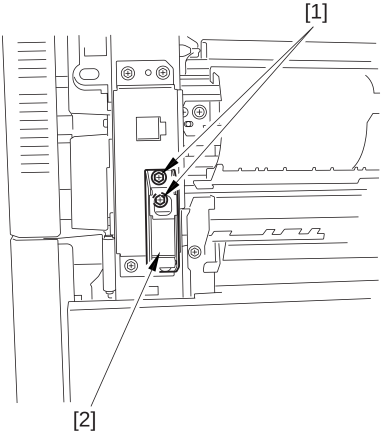
1) Open the front cover.

2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-7-1127

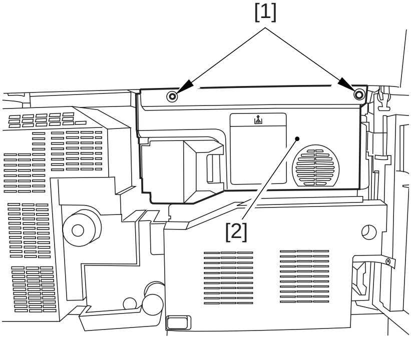
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-7-1128

3) Slide out the fixing/feeding assembly

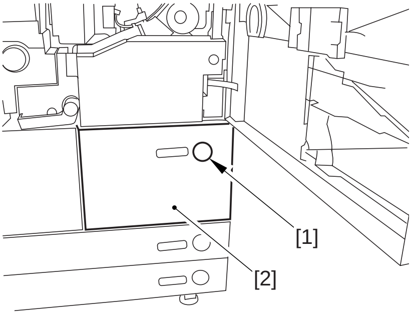
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-7-1129

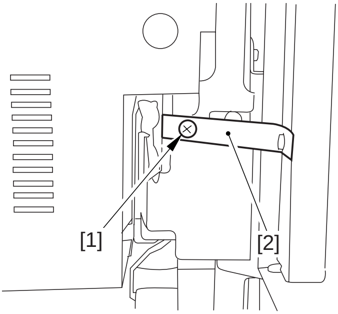
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



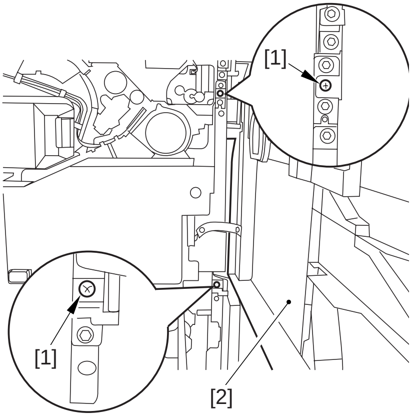
F-7-1130

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-7-1131

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

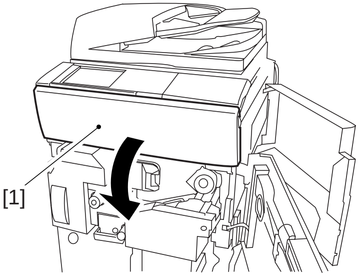


F-7-1132

9) Close the right deck.

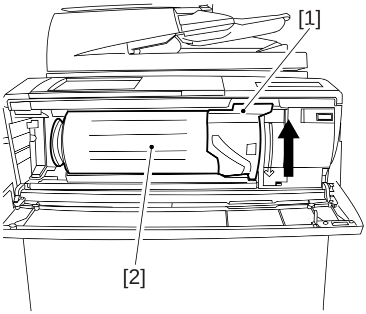
7.11.42.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



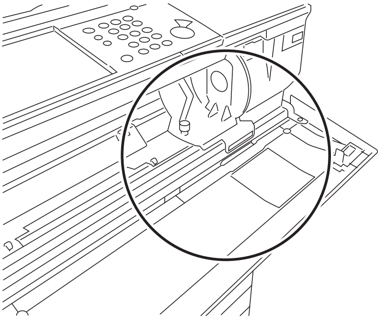
F-7-1133

2) Shift down the lever [1], and detach the black toner bottle [2].



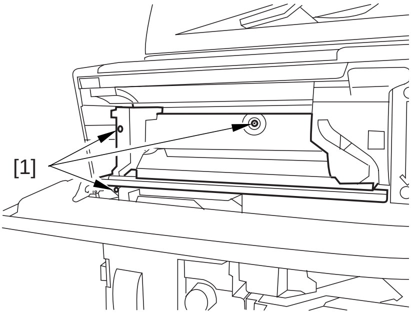
F-7-1134

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



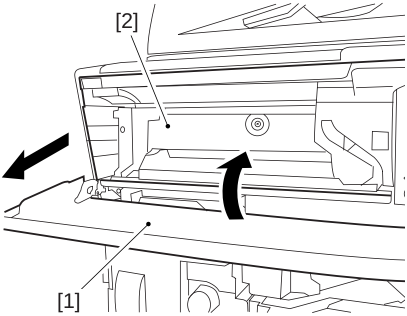
F-7-1135

3) Remove the 3 screws [1].



F-7-1136

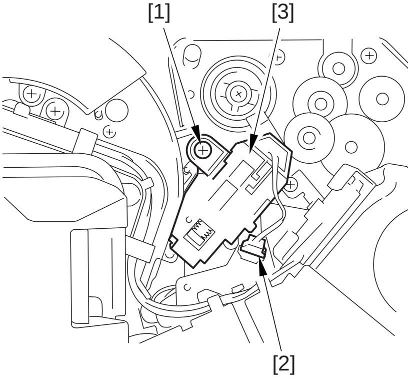
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-7-1137

7.11.42.4 Removing the Pre-Transfer Charging Assembly

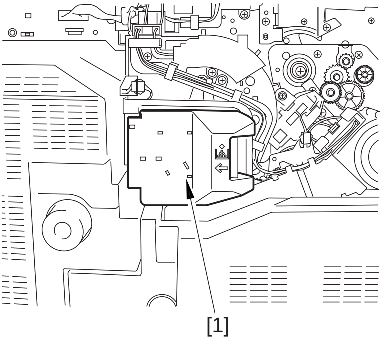
1) Remove the screw [1], and disconnect the connector [1]; then, detach the pre-transfer charging assembly [3] from the machine.



F-7-1138

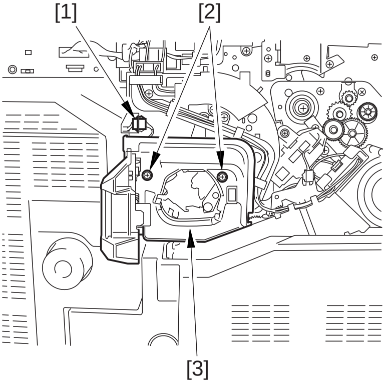
7.11.42.5 Removing the Transfer Cleaner Drive Assembly

1) Open the color toner supply mouth cover [1].



F-7-1139

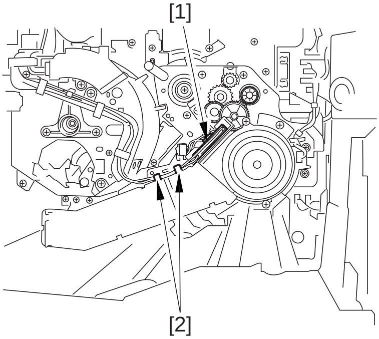
2) Disconnect the connector [1], and remove the screw [2]; then, detach the color toner supply cover]3].



F-7-1140

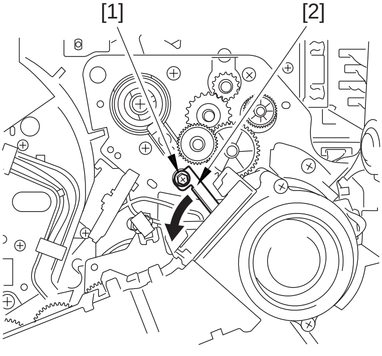
3) Slightly slide out the fixing/feeding assembly.

4) Disconcert the connector [1] to free it from the wire guide[2].



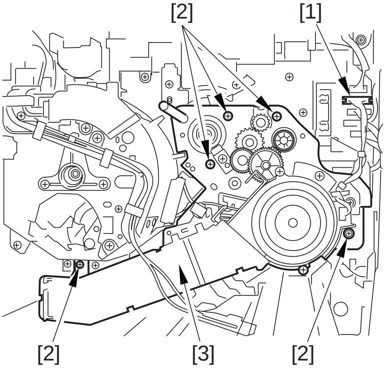
F-7-1141

5) Remove the screw [1], and shift down the locking plate [2].



F-7-1142

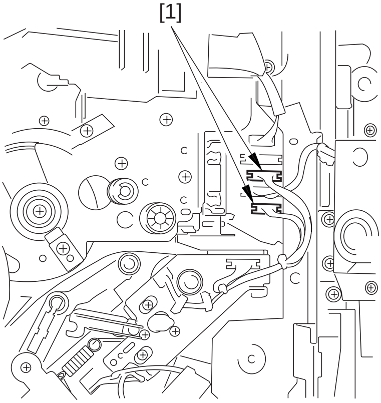
6) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the transfer cleaner driver assembly [3].



F-7-1143

7.11.42.6 Removing the Intermediate Transfer Unit

1) Disconnect the 2 connectors [1].



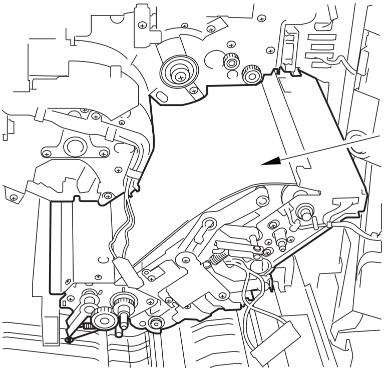
F-7-1144

2) Fully slide out the fixing/feeding assembly.

3) Slide out the intermediate transfer

assembly [1] to the front; when it stops, shift it slightly to the upper right and then slide it farther out to detach.

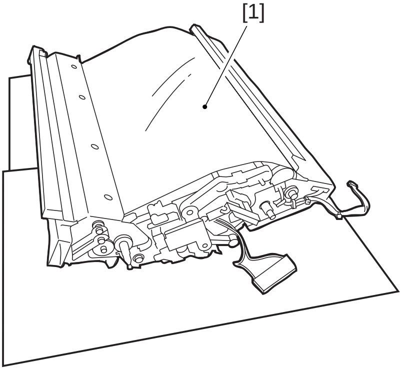
⚠ Do not touch the surface of the ITB. Also, be sure to slide the intermediate transfer assembly straight out so as to prevent damage to the surface of the ITB.



F-7-1145

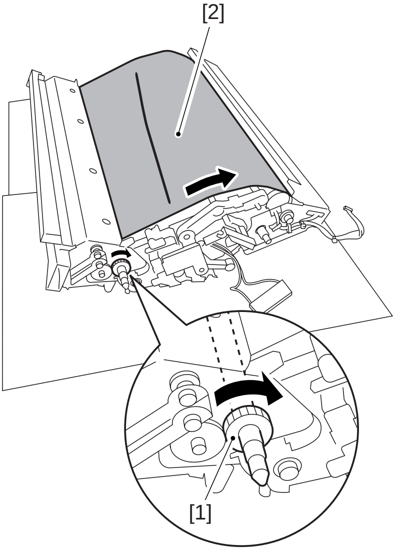
7.11.42.7 Cleaning the Surface of the Intermediate Transfer Unit

1) Place the ITB unit [1] on paper for protection.



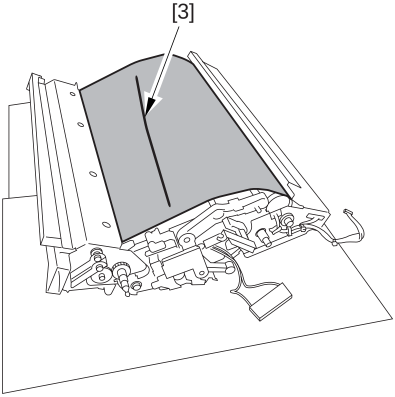
F-7-1146

2) Turn the drive gear [1] by hand in the direction of the arrow to move the intermediate transfer belt [2] about 50 mm.



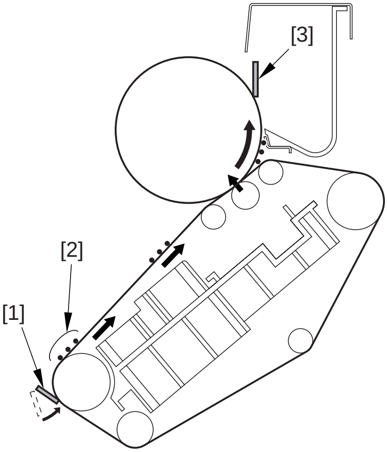
F-7-1147

3) If there is any toner [3] on the surface of the intermediate transfer belt, dry wipe it with lint-free paper.



F-7-1148

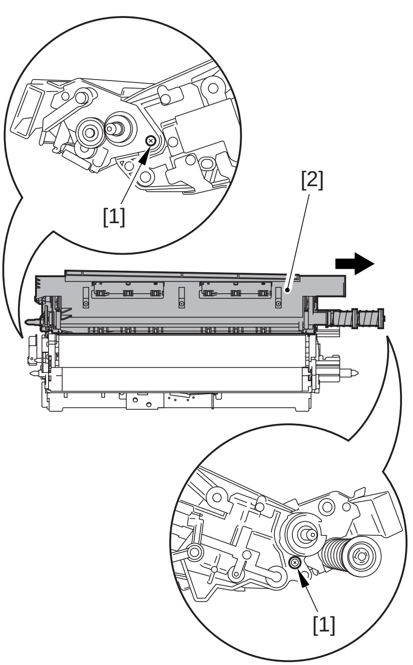
⚠When you remove the transfer cleaner drive assembly, the ITB cleaning blade [1] is likely to come into contact with the intermediate transfer belt by the work of a spring, causing toner [2] to deposit on the belt surface in the form of lines. The toner can then be forced against the photosensitive drum by the primary transfer assembly, thus affecting the photosensitive drum cleaning blade [3].



F-7-1149

7.11.42.8 Removing the ITB Cleaning Unit

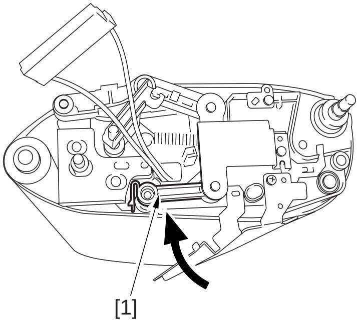
1) Remove the 2 screws [1]; then, slide the ITB cleaning unit [2] in the direction of the arrow to detach.



F-7-1150

7.11.42.9 Removing the Patch Image Reading Unit

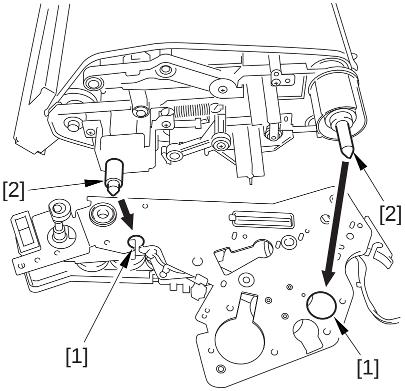
1) Shift the arm [1] shown in the figure to lock it in place; thus releasing the roller (both front and rear).



F-7-1151

2) Stand the intermediate transfer unit by fitting its 2 pints [2] in the 2 holes of the fixing/feeding assembly.

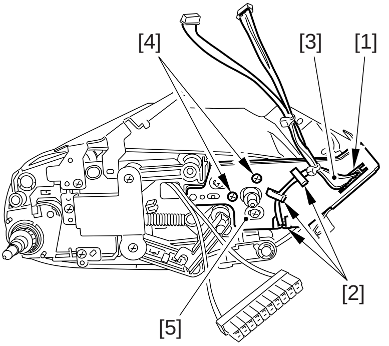
⚠ Make sure that the ITB cleaner unit has been already removed.



F-7-1152

3) Disconnect the connector [1], and free the cable [3] from the 3 cable clamps [2].

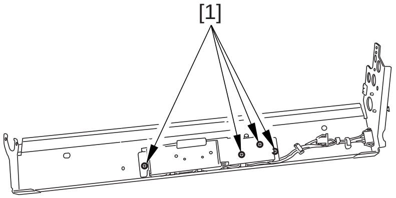
4) Remove the 2 screws [4], and detach the patch image reading unit [5].



F-7-1153

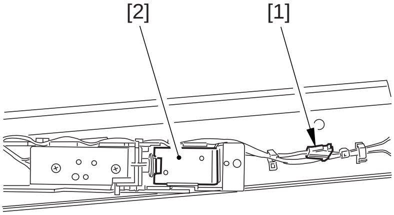
7.11.42.10 Removing the Patch Image Reading Sensor Shutter Solenoid

1) Remove the 4 screws [1].



F-7-1154

2) Disconnect the connector [1], and detach the patch image reading sensor shutter solenoid [2].



F-7-1155

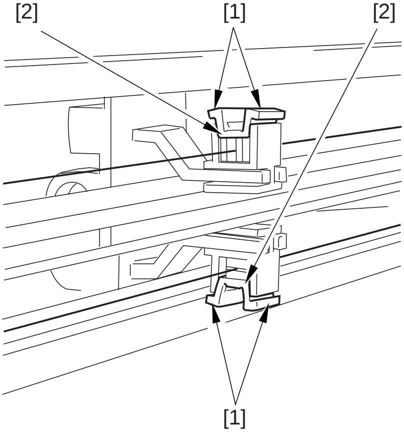
7.11.43 Charging Wire

7.11.43.1 Outline

Around the photosensitive drum are 2 charging writes used for primary and pre-transfer charging. These wires are brown wires 0.06 mm in diameter. Be sure not to use gold-plated writes in their place; otherwise, image faults may occur.
Be sure also to use a high-polish pad (blue) designed for a brown wire as the cleaning pad for the primary and pre-transfer charging assemblies.

7.11.43.2 Removing the Wire Cleaner of the Primary Charging Assembly

1) Pick the wire cleaner hook [1], and remove the wire cleaner [2] .



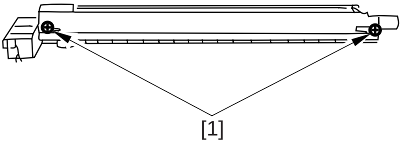
F-7-1156

7.11.43.3 Stringing the Charging Wires

All charging wires (except the grid wire) may be strung in the same way, and the following shows how to string the charging wire of the primary charging assembly.

1) Remove the shield plates (left, right) of the charging assembly. Be sure to detach the left and right shield plates separately so as to prevent warping of the primary charging assembly.

At this time, be sure NOT to loosen both right and left mounting screws [1] at the same time on the left and right shield plates.



F-7-1157

2) Remove the wire cleaner.

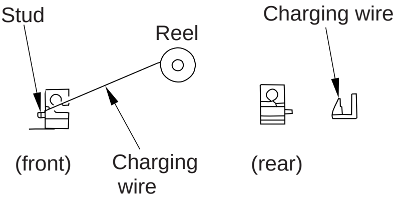
Note: In the case of the pre-transfer charging assembly, remove the 2 lids.

3) Free a length of about 5 cm from a 0.06-mm-dia charging wire reel, and form a loop at its end about 2 mm in diameter.

Reference: To form a lop, wind the charging wire around a hex key once, turn the key 3 to 4 times, and twist the wire.

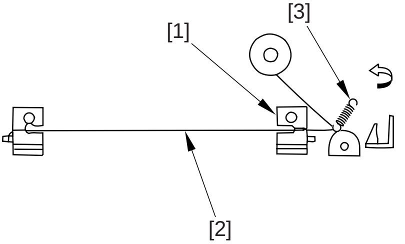
4) Cut off the excess end of the charging wire with nippers.

5) Hook the loop on the stud.



F-7-1158

6) Hook the charging wire [2] on the charging wire positioner [1] at the rear; then, hook the charging wire on the hook [3] for tension.

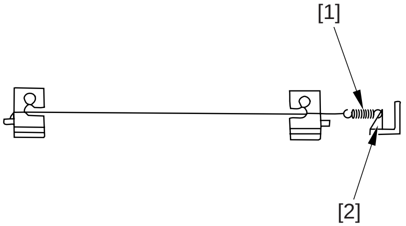


F-7-1159

7) Cut the excess charging wire with nippers.

8) Pick the end [1] of the tension spring with tweezers, and hook it on the charging power supply terminal [2].

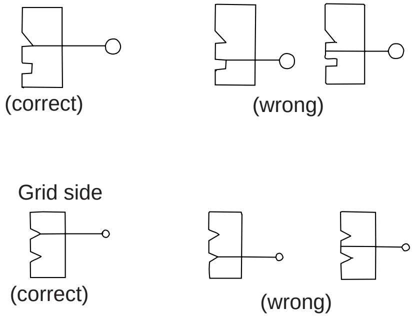
In the case of the pre-transfer charging assembly, hook the spring on the pin at the front.



F-7-1160

Make sure of the following:

- the charging wire must not be bent or twisted.
- the charging wire must be in the V-groove of the charging wire positioner.



F-7-1161

9) Fit the cushion at the front of the charging wire. (This does not apply to the primary charging assembly.)

10) Mount the left and right shield plates (or, 2 lids)..

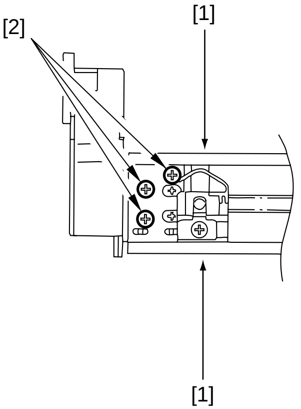
11) Mount the wire cleaner. At this time, be sure to pay attention to the orientation of the wire cleaner.

12) Wipe the charging wire with lint-free paper moistened with alcohol.

7.11.43.4 Stringing the Grid

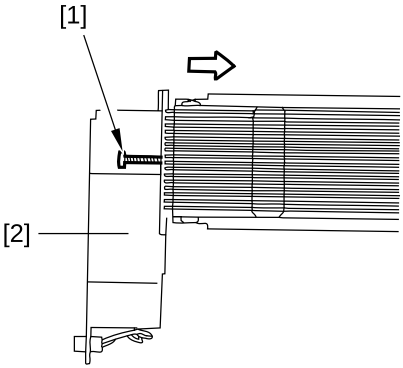
1) Loosen the 2 mounting screws [1] used to hold the left and right shield plates in place.

2) Loosen the 3 mounting screws [2] used to hold the motor unit at the front.



F-7-1162

3) Loosen the screw [1], and move the block [2] in the direction of the arrow; then, fix it in place temporarily.



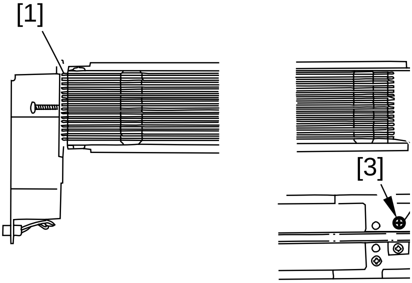
F-7-1163

4) Free a length of about 5 cm form a 0.1-mm-dia charging wire reel, and form a loop of about 2 mm in diameter at its end. Reference: To form a loop, wind the charging wire around a hex key once, turn the key 3 to 4 times, and twist the charging wire

5) Cut the excess of the charging wire with nippers.

6) When you have strung the charging wire on all studs, pass its end [2] between the motor unit and the washer found behind the charging assembly. Then, wind the charging wire around the mounting screw [3] once (clockwise), and fix it in place using the screw.

7) After routing the wire for stud, lead it through wire end [2], put it between the washer and the motor unit, and wind it once around the mounting screw(clockwise) [3] , and secure it in place with a mounting screw.



F-7-1164

8) Cut the excess of the charging wire with nippers.

9) Tighten the mounting screw you loosened in step 3). (Be sure to tighten it until the tension of the gird wire is even and while making sure that the charging assembly is free of deformation.

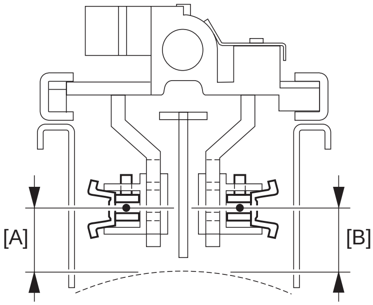
10) Tighten the mounting screws you loosened in steps 1) and 2).

11) Wipe the grid wire with lint-free paper moistened with alcohol.

Note: Check to be sure that the grid wire is free of bends and twists. Also, the lengths of the wire must be at equal intervals. (The grid wire must be in the groove of the block.)

7.11.43.5 Adjusting the Primary Charging Wire

If you have to replace the primary charging wire, check to be sure that the height of the changing wire is as indicated:



F-7-1165

left (on the developing unit side) [A]: 7.5 +/-0.5 mm

right (on the photosensitive drum cleaning unit side) [B]: 8.0 +/-0.5 mm

If the height is not as indicated, make the necessary adjustments.

Reference: The height of the primary charging wire may be adjusted by turning the screw found behind the charging assembly. A full turn will change the height by about 0.7 mm.

Chapter 8

Pickup/ Feeding System

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8.1 Construction

8.1.1 Specifications, Control Mechanisms, and Functions

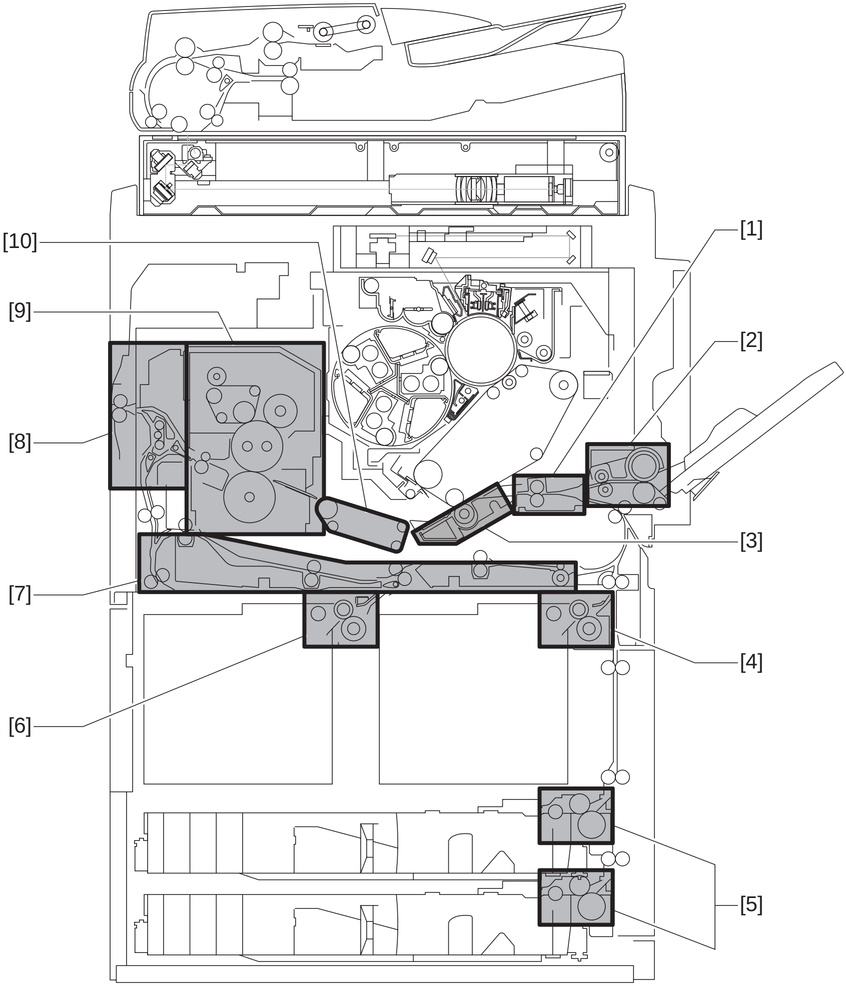
The following shows the major specifications, control mechanisms, and functions of the pickup/feeding system:

T-8-1

Item	Description	Remarks
Method of paper accommodation	front loading	
Method of pickup	front deck (right, left)	separation retard
	cassette (3, 4)	separation retard
	manual feed tray	separation retard
reference of paper movement	center	
accommodation of paper	front deck (right, left)	1500 sheets (80 g/m2)
	cassette (3, 4)	550 sheets (80 g/m2)
	manual feed tray	100 sheets (80 g/m2)
Size of paper	front deck (left, right)	A4, B5, LTR
	cassette (3, 4)	A3, B4, A4, A4R, B5, B5R, A5R, 305X457mm, 320X450mm(SRA3), 330X483mm, 11X17, LGL, LTR, LTRR, STMTR, EXEC, 12X18, 12-5/8X17-11/16, 13X19
	manual feed tray	main scanning: 100 to 330 mm
		sub scanning: 148.5 to 482 mm

Item	Description	Remarks
Weight of paper	front deck (left, right)	64 to 209g/m2
	cassette (3, 4)	64 to 209g/m2
	manual feed tray	64 to 250g/m2
	duplexing	mono color: 64 to 209 g/m2
		color: 64 to 163 g/m2
Switching paper sizes	front deck (left, right)	by service person
	cassette (3,4)	by user
	manual feed tray	by user
Method of duplexing	through path	

8.1.2 Major Divisions of the Machine



F-8-1

[1] Registration roller assembly

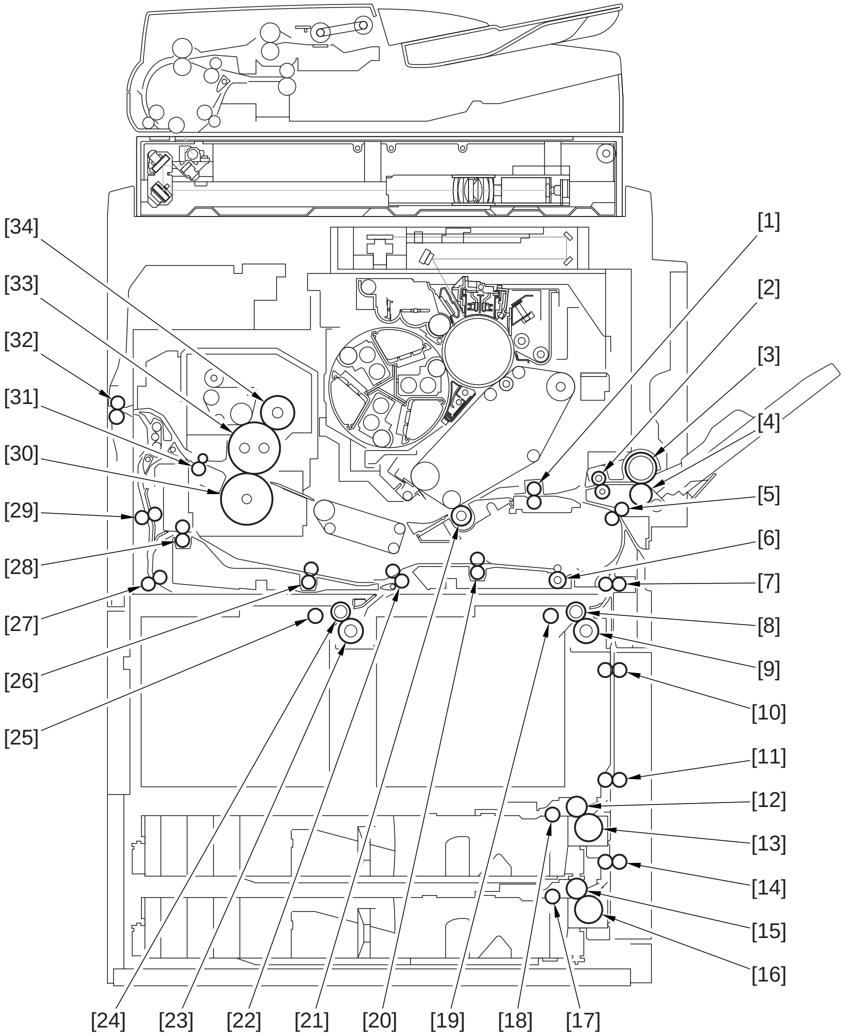
[2] Manual feed pickup assembly

[3] Secondary transfer assembly

[4] Right deck pickup assembly

[5] Cassette pickup assembly
[6] Left deck pickup assembly
[7] Duplexing feeding assembly
[8] Delivery assembly
[9] Fixing assembly
[10] Feeding assembly

8.1.3 Arrangement of Rollers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F-8-2

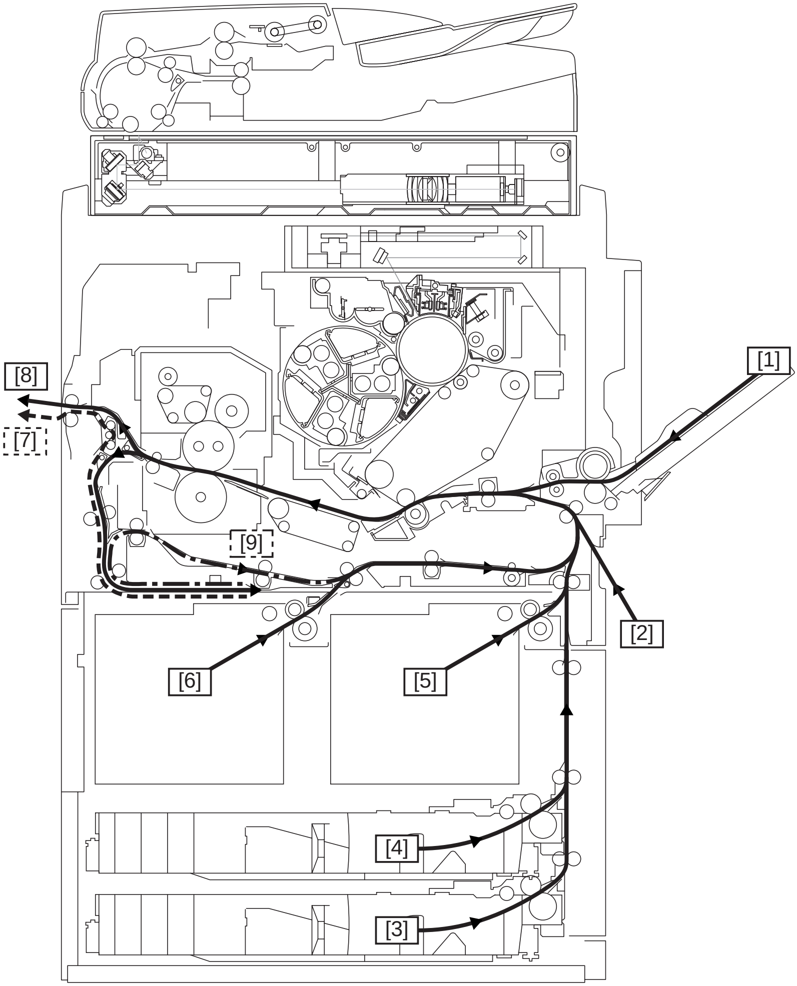
[1] Registration roller

[2] Manual feed pull-off roller

[3] Manual feed roller

[4] Manual feed separation roller
[5] Pre-registration roller
[6] Duplexing outlet roller
[7] Vertical path 1 roller
[8] Right deck feed roller
[9] Right deck separation roller
[10] Vertical path 2 roller
[11] Vertical path 3 roller
[12] Cassette 3 feed roller
[13] Cassette 3 separation roller
[14] Vertical path 4 roller
[15] Cassette 4 feed roller
[16] Cassette 4 separation roller
[17] Cassette 4 pickup roller
[18] Cassette 3 pickup roller
[19] Right deck pickup roller
[20] Duplexing right roller
[21] Secondary transfer roller
[22] Duplexing confluence roller
[23] Left deck separation roller
[24] Left deck feed roller
[25] Left deck pickup roller
[26] Duplexing left roller
[27] Reversing 2 roller
[28] Duplexing inlet roller
[29] Reversing 1 roller
[30] Pressure roller
[31] Inside paper roller
[32] Outside delivery roller
[33] Fixing roller
[34] Outside heat roller

8.1.4 Diagram of the Paper Path



F-8-3

[1] Manual feed pickup

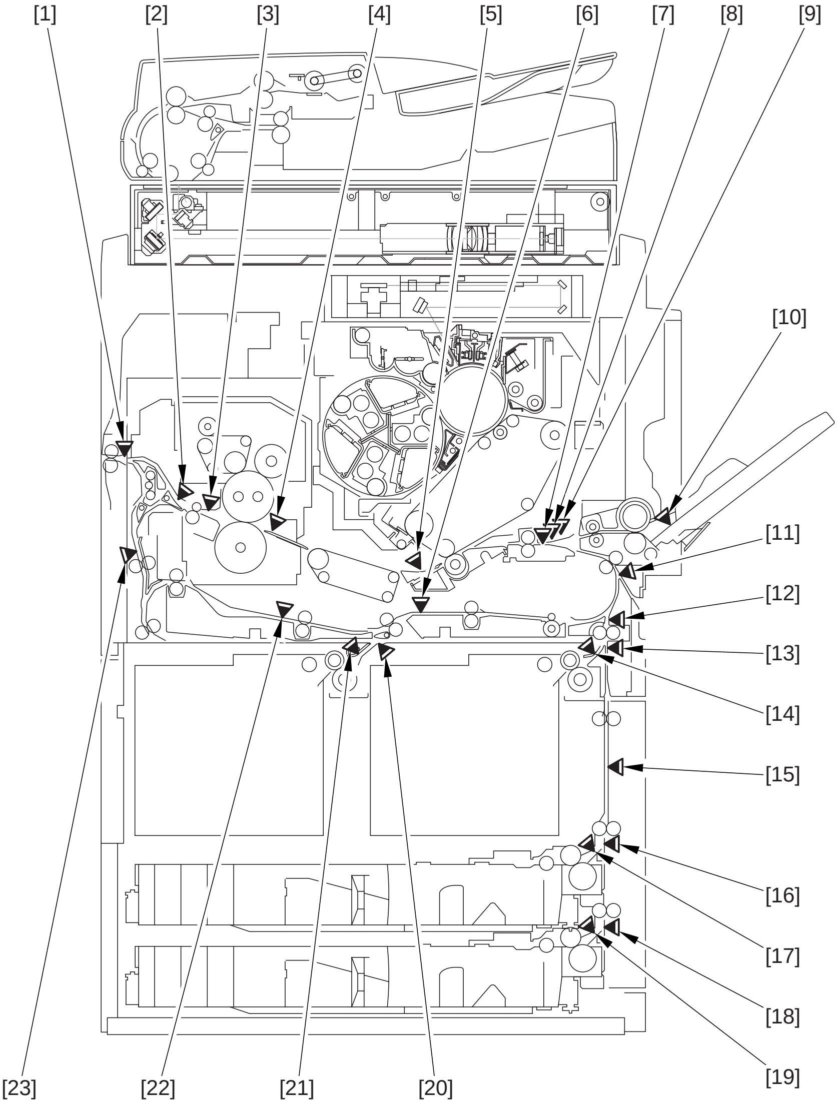
[2] Side paper deck pickup

[3] Cassette 4 pickup

[4] Cassette 3 pickup

[5] Right deck pickup
[6] Left deck pickup
[7] Face-down delivery
[8] Face-up delivery
[9] Duplexing re-pickup

8.1.5 Arrangement of Sensors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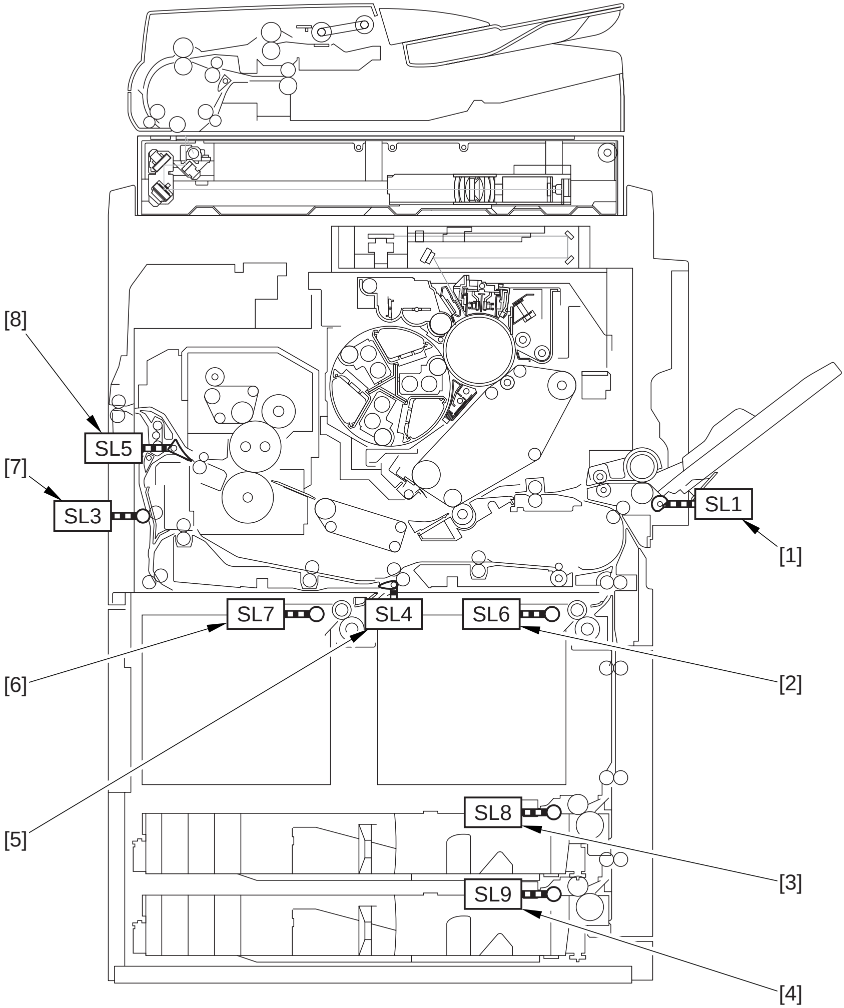
[18]
[19]
[20]
[21]
[22]
[23]

F-8-4

[1] External delivery sensor

[2] Reversal sensor
[3] Inside delivery sensor
[4] Fixing inlet sensor
[5] Post-transfer sensor
[6] Duplexing confluence sensor
[7] Transparency sensor (front; PS3)
[8] Registration sensor
[9] Transparency sensor (rear; PS29)
[10] Manual feed paper sensor
[11] Vertical path confluence sensor
[12] Vertical path 0 sensor
[13] Vertical path 1 sensor
[14] Right deck pickup sensor
[15] Vertical path 2 sensor
[16] Vertical path 3 sensor
[17] Cassette 3 pickup sensor
[18] Vertical path 4 sensor
[19] Cassette 4 pickup sensor
[20] Left deck stationary sensor
[21] Left deck pickup sensor
[22] Duplexing left sensor
[23] Reversal vertical path sensor

8.1.6 Arrangement of Solenoids


[8]
SL5
[7]
SL3
SL1
[1]
SL7
SL4
SL6
[6]
[2]
[5]
SL8
[3]
SL9
[4]

F-8-5

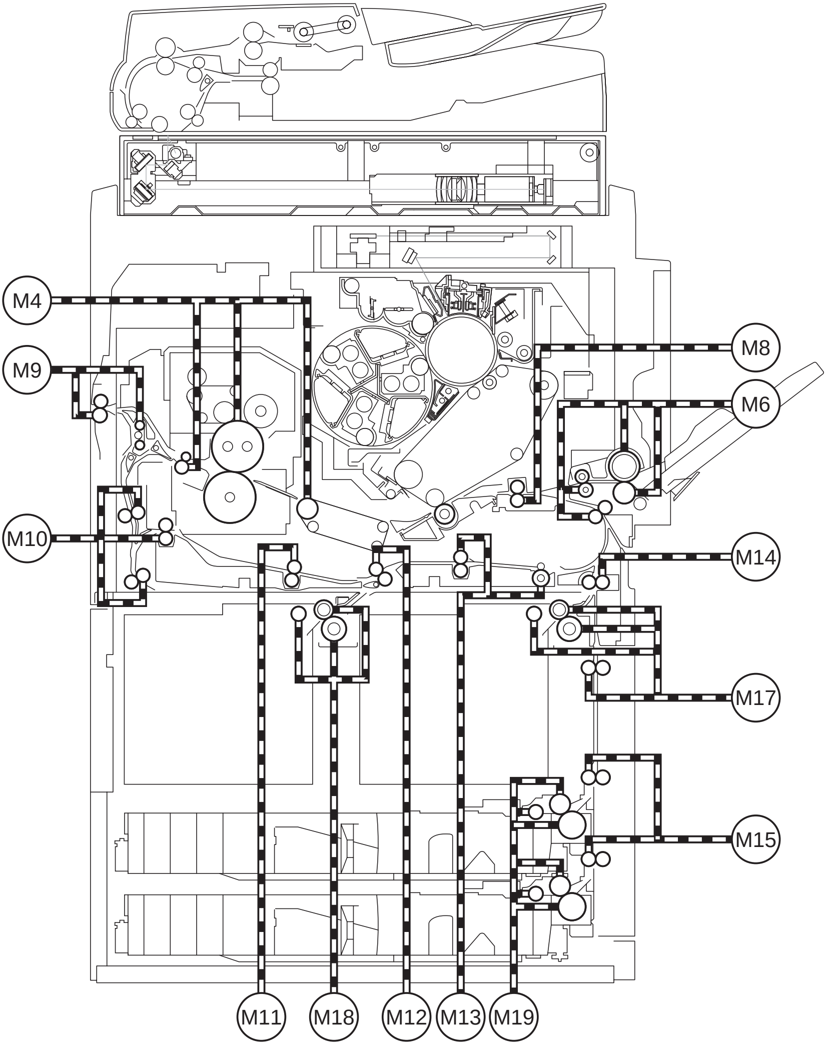
[1] Manual feed pickup solenoid

[2] Deck (right) pickup solenoid

[3] Cassette 3 pickup solenoid

[4] Cassette 4 pickup solenoid
[5] Left deck confluence solenoid
[6] Deck (left) pickup solenoid
[7] Reversal shifting solenoid
[8] Delivery solenoid

8.1.7 Arrangement of Drive Mechanisms


M4
M9
M10
M8
M6
M14
M17
M15
M11
M18
M12
M13
M19

F-8-6

M4 Fixing motor

M6 Manual feed pre-registration motor

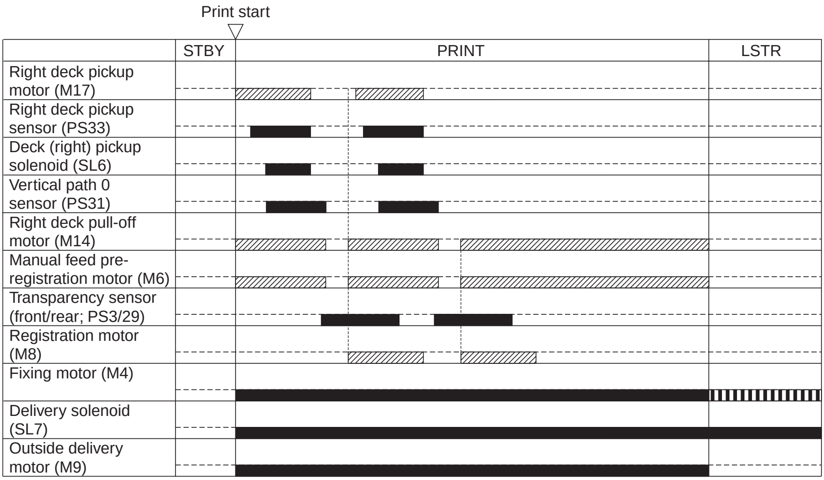
M8 Registration motor
M9 Outside delivery motor
M10 Duplexing reversal motor
M11 Duplexing left motor
M12 Duplexing middle motor
M13 Duplexing right motor
M14 Right deck pull-off motor
M15 Vertical path motor
M17 Right deck pickup motor
M18 Left deck pickup motor
M19 Cassette pickup motor

8.2 Basic Sequence

8.2.1 Basic Sequence of Operation (in response to a press on the Start key)

a. Right Deck

<A4, plain, 2 sheets continuous, secondary transfer speed at normal, face-up delivery>

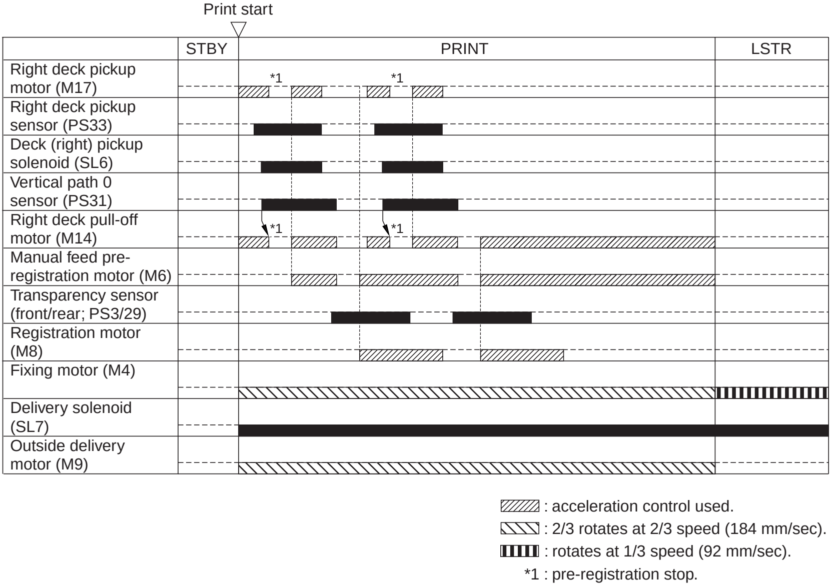

Print start
STBY
PRINT
LSTR
Right deck pickup motor (M17)
Right deck pickup sensor (PS33)
Deck (right) pickup solenoid (SL6)
Vertical path 0 sensor (PS31)
Right deck pull-off motor (M14)
Manual feed pre-registration motor (M6)
Transparency sensor (front/rear; PS3/29)
Registration motor (M8)
Fixing motor (M4)
Delivery solenoid (SL7)
Outside delivery motor (M9)

▨: acceleration control used.

▥: rotates at 1/3 speed (92 mm/sec).

F-8-7

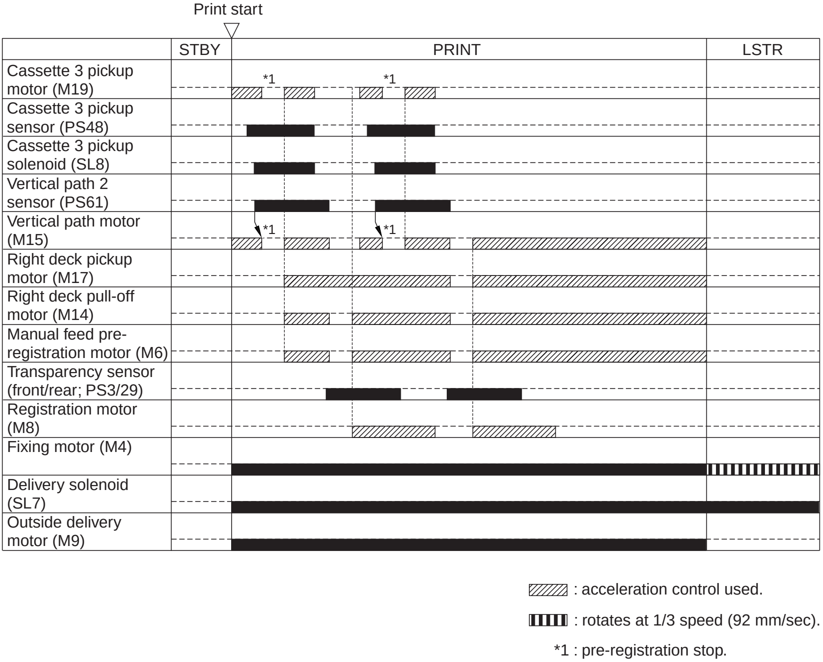
<A4, plain, 2 sheets continuous, secondary transfer speed at 2/3, face-up delivery>


Print start
STBY
PRINT
LSTR
Right deck pickup motor (M17)
Right deck pickup sensor (PS33)
Deck (right) pickup solenoid (SL6)
Vertical path 0 sensor (PS31)
Right deck pull-off motor (M14)
Manual feed pre-registration motor (M6)
Transparency sensor (front/rear; PS3/29)
Registration motor (M8)
Fixing motor (M4)
Delivery solenoid (SL7)
Outside delivery motor (M9)
*1
*1
*1
*1
▨ : acceleration control used.
▧ : 2/3 rotates at 2/3 speed (184 mm/sec).
▥ : rotates at 1/3 speed (92 mm/sec).
*1 : pre-registration stop.

F-8-8

b. Cassette 3

<A4, plain, 2 sheets continuous, secondary transfer speed at normal, face-up delivery>


Print start
STBY
PRINT
LSTR
Cassette 3 pickup motor (M19)
Cassette 3 pickup sensor (PS48)
Cassette 3 pickup solenoid (SL8)
Vertical path 2 sensor (PS61)
Vertical path motor (M15)
Right deck pickup motor (M17)
Right deck pull-off motor (M14)
Manual feed pre-registration motor (M6)
Transparency sensor (front/rear; PS3/29)
Registration motor (M8)
Fixing motor (M4)
Delivery solenoid (SL7)
Outside delivery motor (M9)
*1
*1
*1
*1

▨ : acceleration control used.

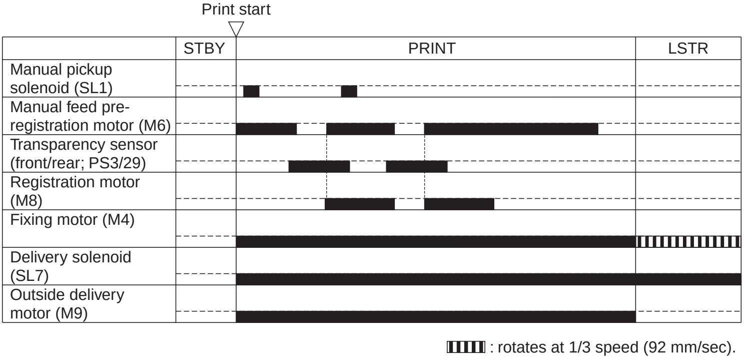
▥ : rotates at 1/3 speed (92 mm/sec).

*1 : pre-registration stop.

F-8-9

c. Manual Feeder

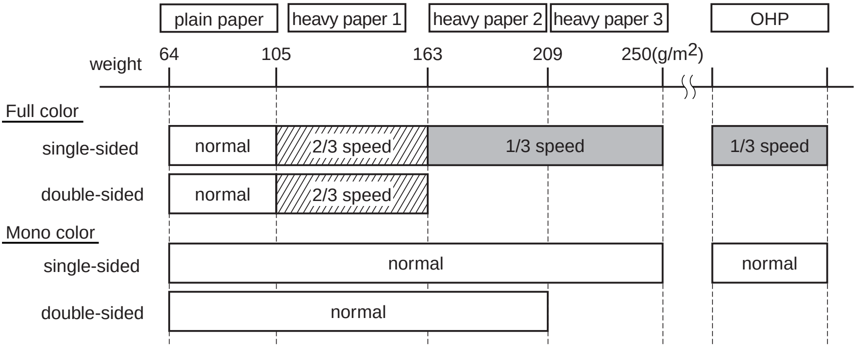
<A4, plain, 2 sheets continuous, face-up delivery>



F-8-10

8.2.2 Interval Acceleration

The machine provides 3 types of secondary transfer speed (normal, 2/3 speed, 1/3 speed) to suit the type of paper (material, weight) and the selected color mode. These speeds are in keeping with the image formation speed (276 mm/sec; if normal speed, 276 mm/sec; if 2/3 speed, 184 mm/sec; if 1/3 speed, 92 mm/sec).


plain paper
heavy paper 1
heavy paper 2
heavy paper 3
OHP
weight
64
105
163
209
250(g/m2)
Full color
single-sided
normal
2/3 speed
1/3 speed
1/3 speed
double-sided
normal
2/3 speed
Mono color
single-sided
normal
normal
double-sided
normal

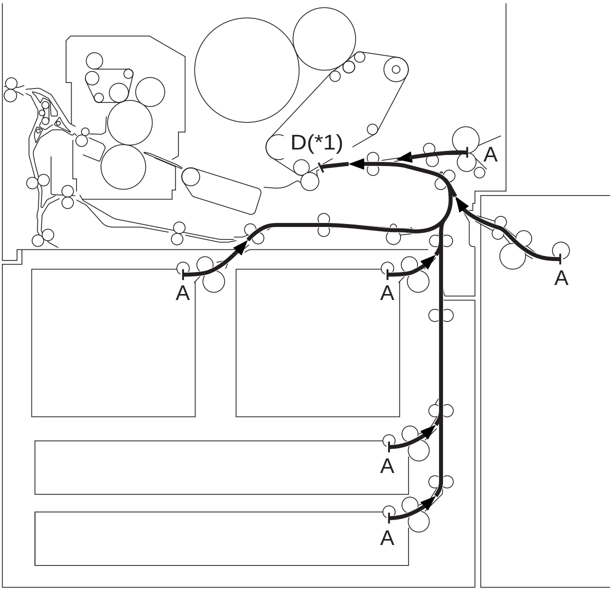
F-8-11

Instead of relying on electromagnetic clutches, the machine's feeding system makes use of a number of drive motors for finer control of interval acceleration, thus increasing the level of productivity. The rate of acceleration in response to transfer speed at respective intervals is as follows:

a. between pickup and secondary transfer roller

T-8-2

	Transfer speed	**Normal (276 mm/sec)**	**2/3 speed (184 mm/sec)**	**1/3 speed (92 mm/sec)**
	Interval	**A to D**	**A to D**	**A to D**
Feed speed	Right deck	1.8 times as fast (speed partly variable) *2	2.2 times as fast	2.7 times as fast
	left deck cassette 3/4 side deck (optional)	1.8 times as fast	2.2 times as fast	2.7 times as fast
	Manual feed	Equivalent to transfer speed	Equivalent to transfer speed	Equivalent to transfer speed



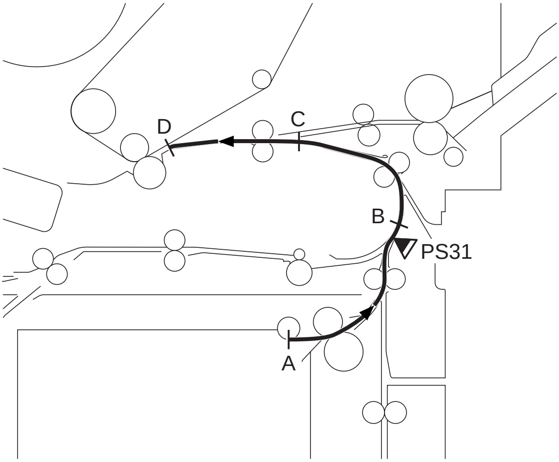
F-8-12

*1. Point 20 mm in front of secondary transfer.

*2. If the source of paper is the right deck and normal speed is used, the machine executes variable speed control (speed used between normal speed and x1.8 speed) in relation to the timing at which the paper reaches the vertical path 0 sensor (PS31) within interval B and C; this is to prevent interference between the trailing edge of the preceding paper and the leading edge of the following paper otherwise occurring if the speed was fixed to x1.8 (because of the short distance from the point of pickup to the point of registration).

T-8-3

	Transfer speed	**Normal speed (276 mm/sec)**		
	Interval	**A to B**	**B to C**	**C to D**
Feed speed	right deck	1.8 times speed	variable speed	1.8 times speed



F-8-13

A: Point of pickup
B: Point of pre-registration
C: Point 36 mm in front of the registration sensor
D: Point 20 mm in front of secondary transfer

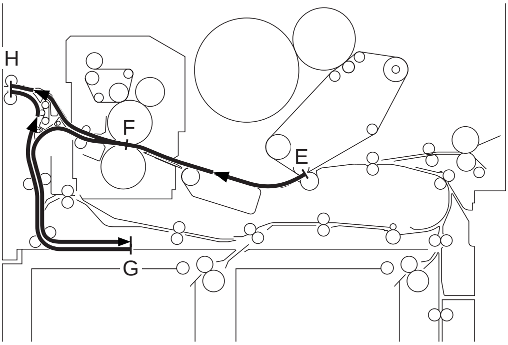
b. Secondary Transfer Roller to Outside Delivery

T-8-4

	Transfer speed	**Normal speed (276 mm/ sec)**	**2/3 speed (184 mm/sec)**	**1/3 Speed (92 mm/sec)**
	Interval	**E to F to H**	**E to F to H**	**E to F to H**
Feed speed	face-up delivery	equivalent to transfer speed *3	equivalent to transfer speed	equivalent to transfer speed

T-8-5

	Transfer speed	**Normal speed (276 mm/ sec)**		**2/3 speed (184 mm/sc)**		**1/3 speed (92 mm/sec)**	
	Interval	**E to F**	**F to G to H**	**E to F**	**F to G to H**	**E to F**	**F to G to H**
Feed speed	Face-down delivery	equivalent to transfer speed	2.3 as fast *4	equivalent to transfer speed	3.4 times as fast *4	equivalent to transfer speed	3.4 times as fast *4



F-8-14

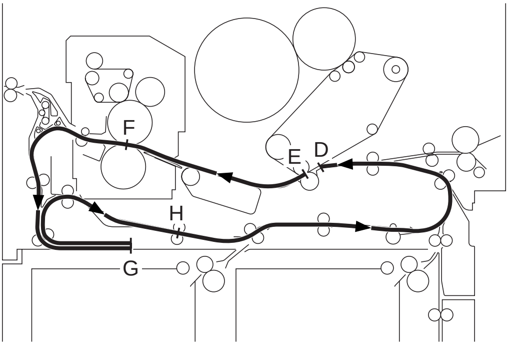
*3. If the paper is A4, B5, or LTR, the speed of movement will be 2.3 times as high between F and H. However, the normal speed may be selected in service mode for better stacking (COPIER>OPTION>BODY>DLV-SPSW).

*4. Acceleration occurs when the trailing edge of paper leaves the inside delivery sensor.

c. Secondary Transfer Roller to Duplexing Re-Pickup

T-8-6

	Transfer speed	**Normal speed (276 mm/sec)**			**2/speed (184 mm/sec)**		
	Interval	**E to F**	**F to G to H**	**H to D**	**E to F**	**F to G to H**	**H to D**
Feed speed	duplexing	equivalent to transfer speed	2.3 time as fast *5	1.8 times as fast	equivalent to transfer speed	3.4 times as fast *5	2.2 times as fast



F-8-15

*5. Acceleration occurs when the trailing edge of paper leaves the fixing roller. In duplexing mode, 1/3 speed cannot occur at tune of transfer.

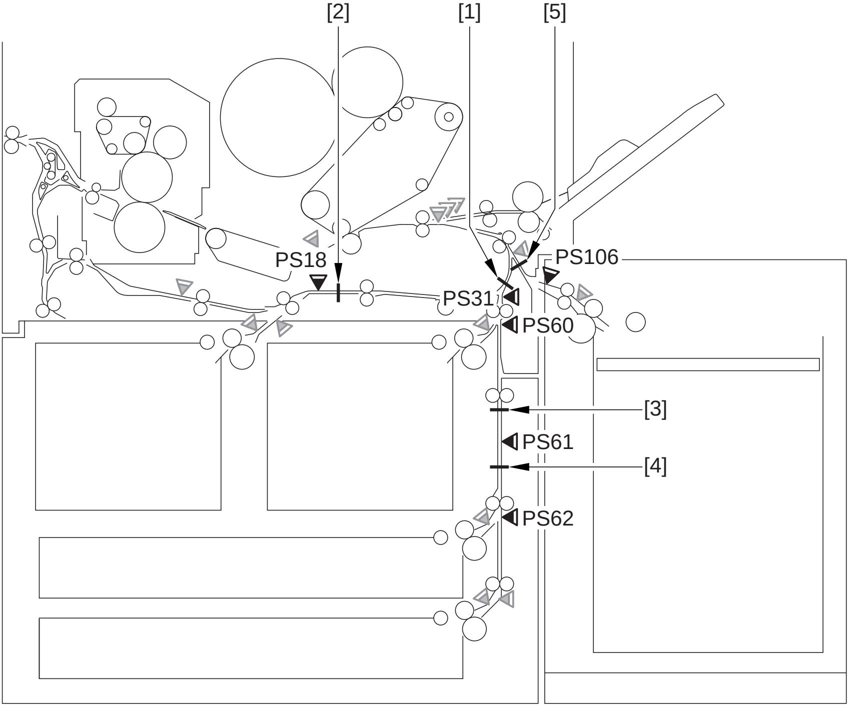
8.2.3 Stopping the Paper Before Registration

The machine stops the paper before registration to prevent interference between preceding paper and following paper (otherwise occurring as the result of changes in feed speed over certain intervals).

The paper is stopped at the following points (according to sources of paper). If the manual feed pickup unit is used as the source of paper or if the source of paper is the right deck and, at the same time, while the normal transfer speed is used (i.e., variable speed control is executed), paper will not be stopped before registration:

T-8-7

Source of paper	Point of stopping paper	
Right deck	[1]	about 10 mm ahead of the vertical path 0 sensor (PS31)
Left deck	[2]	about 25 mm ahead of the duplexing confluence sensor (PS18)
Cassette 3	[3]	about 24 mm ahead of the vertical path 2 sensor (PS61)
Cassette 4	[4]	about 57 mm ahead of the vertical path 3 sensor (PS62)
Side deck	[5]	about 29 mm ahead of the deck feed sensor (PS106)



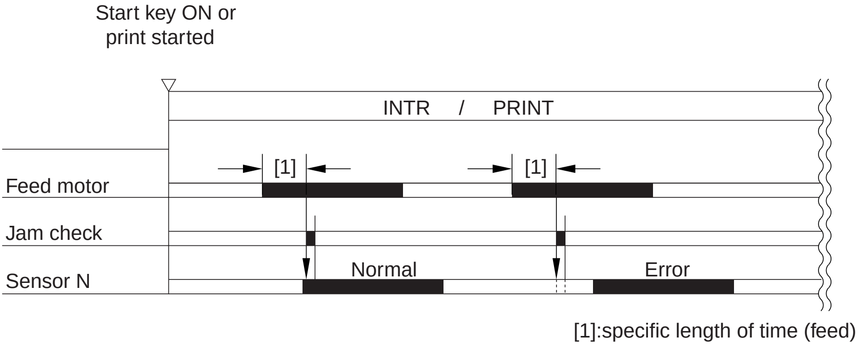
F-8-16

8.3 Detecting Jams

8.3.1 Delivery Jams

8.3.1.1 Cassette/Deck Pickup Assembly (right deck, left deck, cassette 3/4)

The leading edge of paper does not reach the sensor in question within a specific period of time after the pickup motor goes on.


Start key ON or
print started
INTR / PRINT
[1]
[1]
Feed motor
Jam check
Sensor N
Normal
Error
[1]:specific length of time (feed)

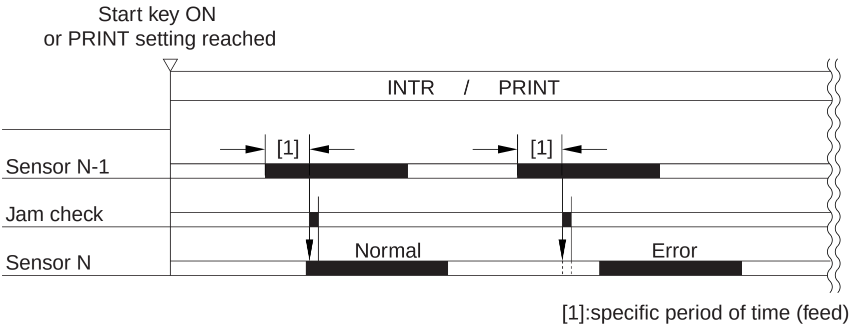
F-8-17

T-8-8

Source of paper	Motor	Sensor used
Right deck	right deck pickup motor (M17)	right deck pickup sensor (PS33)
Left deck	left deck pickup motor (M18)	left deck pickup sensor (PS40)
Cassette 3	cassette pickup motor (M19)	cassette 3 pickup sensor (PS48)
Cassette 4	cassette pickup motor (M19)	cassette 4 pickup sensor (PS54)

8.3.1.2 Delay Jam (source of paper other than cassette/deck)

The machine identifies a delay jam as follows when the source of paper is not the cassette: The machine monitors the length of time between when paper leaves the sensor N-1 and when it reaches the sensor N (i.e., the sensor used for detection), and it will identify a delay jam if the sensor N does not go on within a specific period of time after the sensor N-1 has gone on.


Start key ON
or PRINT setting reached
INTR / PRINT
Sensor N-1
[1]
[1]
Jam check
Sensor N
Normal
Error
[1]:specific period of time (feed)

F-8-18

T-8-9

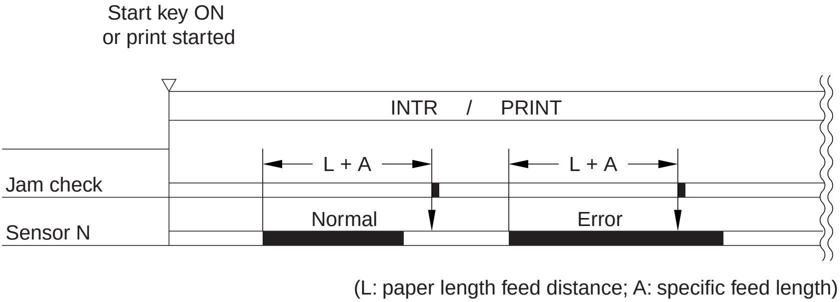
Sensor	Remarks
Vertical path confluence sensor (PS32)	
Vertical path 0 sensor (PS31)	
Vertical path 1 sensor (PS60)	
Vertical path 2 sensor (PS61)	
Vertical path 3 sensor (PS62)	
Vertical path 4 sensor (PS63)	
Transparency sensor (front; PS3)	if not transparency
Transparency sensor (rear; PS29)	if not transparency
Registration sensor (PS9)	if transparency
Post-transfer sensor (PS10)	
Inside delivery sensor (PS12)	
Reversal sensor (PS14)	
Outside delivery sensor (PS13)	
Reversal vertical path sensor (PS15)	

Sensor	Remarks
Duplexing left sensor (PS17)	
Duplexing confluence sensor (PS18)	

8.3.2 Stationary Jams

8.3.2.1 Common Stationary Jam

The sensor N does not go off within a specific period of time after it has gone on.


Start key ON
or print started
INTR / PRINT
L + A
L + A
Jam check
Sensor N
Normal
Error
(L: paper length feed distance; A: specific feed length)

F-8-19

T-8-10

Sensor	Remarks
Vertical confluence sensor (PS32)	
Vertical path 0 sensor (PS31)	
Vertical path 1 sensor (PS60)	
Vertical path 2 sensor (PS61)	
Vertical path 3 sensor (PS62)	
Vertical path 4 sensor (PS63)	
Transparency sensor (front; PS3)	if not transparency
Transparency sensor (rear; PS29)	if not transparency
Registration sensor (PS9)	if transparency

Sensor	Remarks
Reversal sensor (PS14)	if face-down delivery
Outside delivery sensor (PS13)	
Reversal vertical path sensor (PS15)	
Duplexing left sensor (PS17)	
Duplexing confluence sensor (PS18)	

8.3.2.2 Stationary Jam at Power-On

Paper exists over the following sensor before the machine starts initial multiple rotation at power-on:

T-8-11

Sensor	Remarks
Vertical path confluence sensor (PS32)	
Vertical path 0 sensor (PS31)	
Vertical path 1 sensor (PS60)	
Vertical path 2 sensor (PS61)	
Vertical pith 3 sensor (PS62)	
Vertical path 4 sensor (PS63)	
Transparency sensor (front; PS3)	
Transparency sensor (rear; PS29)	
Registration sensor (PS9)	
Reversal sensor (PS14)	
Outside delivery sensor (PS13)	
Reversal vertical path sensor (PS15)	
Duplexing left sensor (PS17)	
Duplexing confluence sensor (PS18)	
Fixing inlet sensor (PS11)	

Sensor	Remarks
Left deck stationary sensor (PS47)	

8.3.3 Other Jams

8.3.3.1 Wrong Paper Size

The machine identifies a jam if it detects paper shorter than the specified size:

T-8-12

Sensor	Remarks
Transparency sensor (front; PS3)	if not transparency
Transparency sensor (rear; PS29)	if not transparency
Registration sensor (PS9)	if transparency

8.3.3.2 Wrong Material

The machine identifies a jam if it detects paper of a material not indicated by the transparency sensor.

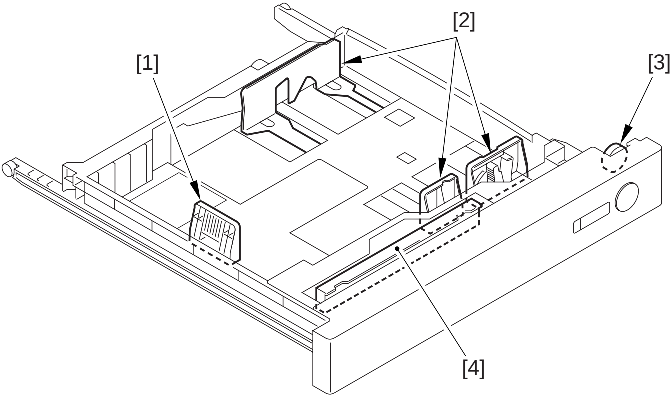
T-8-13

Sensor
Ttansparency sensor (front: PS3)
Ttansparency sensor (rear: PS29)

8.4 Cassette

8.4.1 Overview

Paper is held in position inside the cassette by means of the side guide plate and the rear guide plate.
The index special guide must be fitted before using an index sheet.
The cassette is set to a specific paper size using the cassette size dial.



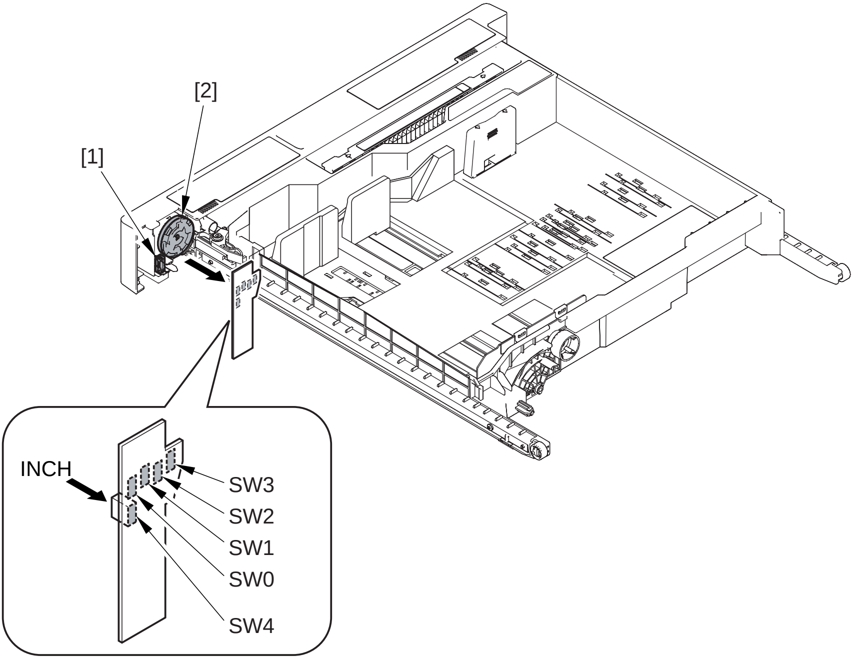
F-8-20

[1] Rear guide plate
[2] Side guide plate
[3] Cassette size dial
[4] Index special guide

8.4.2 Identifying Paper Sizes

The size of paper inside the cassette is identified by the cassette size dial, and the result is communicated to the cassette size detection PCB.
The array of 4 actuators on the cassette size detection PCB found on the machine indicates a specific state in keeping with the states (on/off) of the 4 actuators, enabling the identification of as many as 15 paper sizes.
If the cassette is absent, all 4 actuators are off, causing the machine to identify the absence of a cassette.

The cassette is set to AB-configuration or Inch-configuration by means of the switch mounted to the side of the dial. When the cassette is fitted to the machine, the switch goes off or on to indicate that the cassette is of the AB or inch configuration.



F-8-21

[1] AB/inch-configuration switch
[2] Cassette size dial

T-8-14

(AB-Configuration)

Size	SW0	SW1	SW2	SW3	SW4
(no cassette)	OFF	OFF	OFF	OFF	OFF
A5R	ON	OFF	ON	ON	OFF
A4	ON	ON	ON	ON	OFF

(AB-Configuration)

Size	SW0	SW1	SW2	SW3	SW4
A4R	OFF	ON	ON	ON	OFF
A3	OFF	ON	OFF	ON	OFF
B5	ON	ON	OFF	ON	OFF
B5R	OFF	OFF	OFF	ON	OFF
B4	ON	OFF	OFF	ON	OFF
305x457mm	ON	ON	OFF	OFF	OFF
320x450mm(SRA3)	ON	ON	ON	OFF	OFF
330x483mm	OFF	OFF	ON	OFF	OFF
U1	OFF	ON	OFF	OFF	OFF
U2	OFF	ON	ON	OFF	OFF

T-8-15

(Inch-Configuration)

Size	SW0	SW1	SW2	SW3	SW4
(no cassette)	OFF	OFF	OFF	OFF	OFF
STMTR	ON	OFF	ON	ON	ON
LTR	ON	ON	ON	ON	ON
LTRR	OFF	ON	ON	ON	ON
LGL	OFF	ON	OFF	ON	ON
11 x 17	ON	ON	OFF	ON	ON
EXEC	OFF	OFF	OFF	ON	ON
12 x 18	ON	ON	OFF	OFF	ON
12-5/8 x 17-11/16	ON	ON	ON	OFF	ON
13 x 19	OFF	OFF	ON	OFF	ON
U3	OFF	ON	OFF	OFF	ON
U4	OFF	ON	ON	OFF	ON

If a combination not found in the foregoing table is found, the machine will assume the absence of a cassette, and will not move up the cassette lifter.
If the machine fails to identify a paper size (no indication of a paper size on the control panel), it will indicate the Add Paper message if the cassette in question is selected.

8.4.3 Setting the Universal Cassette

The following is a list of default sizes identified in relation to U1 through U4:

T-8-16

U1	G-LTR
U2	FLSC
U3	G-LGL
U4	A-LTR

In addition to the foregoing default sizes, the following may be assigned in service mode:

T-8-17

(Universal U1 thorough U4)

Size
FLSC
OFI
E-OFI
B-OFI
A-OFI
M-OFI
FOLI
A-FLS
G-LTR
G-LGL

(Universal U1 thorough U4)

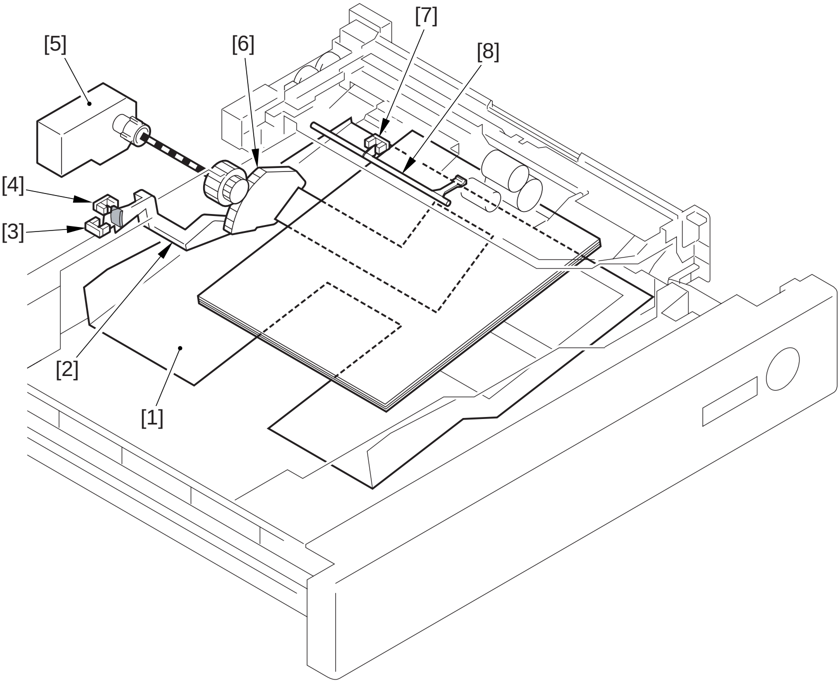
Size
A-LTR (LTR)
A-LTRR (LTRR)

8.4.4 Checking the Level of Remaining Paper

The machine uses the following sensors to check the level of remaining paper:

T-8-18

Sensor	Cassette 3	Cassette 4
Paper level sensor A	PS52	PS58
Paper level sensor B	PS53	PS59
Paper sensor	PS50	SP56

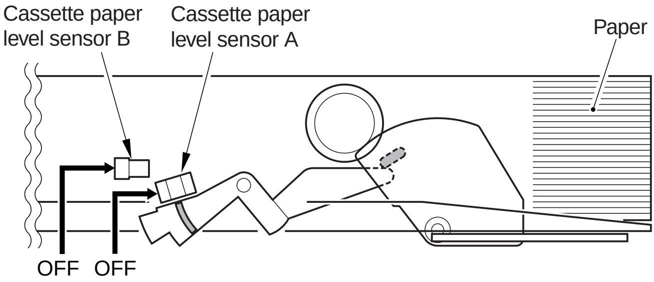


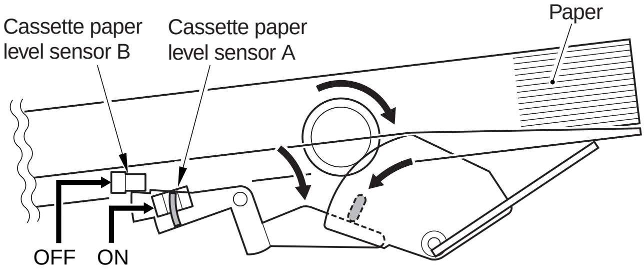
F-8-22

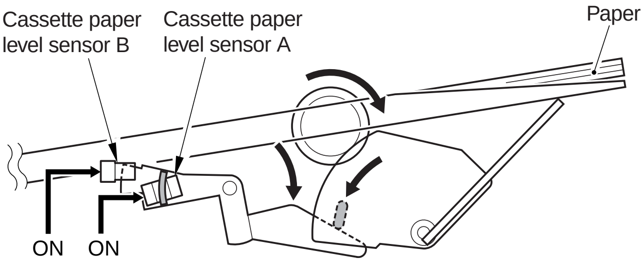
[1] Tray
[2] Paper level sensor flag
[3] Cassette paper level sensor A
[4] Cassette paper level sensor B
[5] Lifter motor
[6] Lifter gear
[7] Cassette paper sensor
[8] Flag

View Front the Front of the Machine

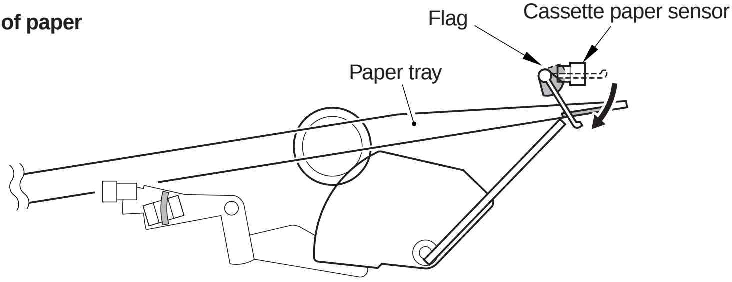
Full of paper


Cassette paper level sensor B
Cassette paper level sensor A
Paper
OFF
OFF


Cassette paper level sensor B
Cassette paper level sensor A
Paper
OFF
ON


Cassette paper level sensor B
Cassette paper level sensor A
Paper
ON
ON

Empty of paper


Flag
Cassette paper sensor
Paper tray

F-8-23

T-8-19

Paper level sensor A	**Paper level sensor B**	**Paper sensor**	**Level of paper**	**Indication on control panel**
OFF	OFF	OFF	from 100% to about 50% of capacity	☰
ON	OFF	OFF	from about 50% to about 10% of capacity	⚌
ON	ON	OFF	about 10% or less of capacity	⚊
--	--	ON	no paper	⊔

8.5 Cassette Pick-Up Unit

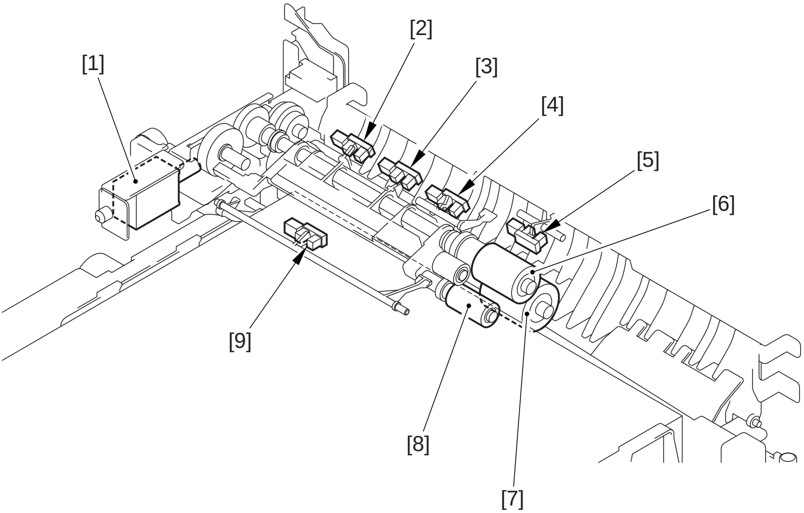
8.5.1 Overview

The paper inside the cassette is held up by the lifter so that the paper remains in contact with the pickup roller.

When the cassette pickup motor goes on, the pickup roller starts to rotate to pick up paper. When the cassette solenoid goes on, on the other hand, the pickup roller starts to leave the surface of paper.

The feed roller and the separation roller make sure that only one sheet of paper is moved ahead to the feed path to reach the vertical path roller.

The pickup roller, feed roller, and separation roller of the cassette 3/4 are driven by the cassette pickup motor (M19), and its drive is switched from the cassette 3 pickup assembly to the cassette 4 pickup assembly by reversing the rotation of the cassette pickup motor.



F-8-24

[1] Cassette 3/4 pickup solenoid (SL8/SL9)

[2] Cassette 3/4 limit sensor (PS49/PS55)

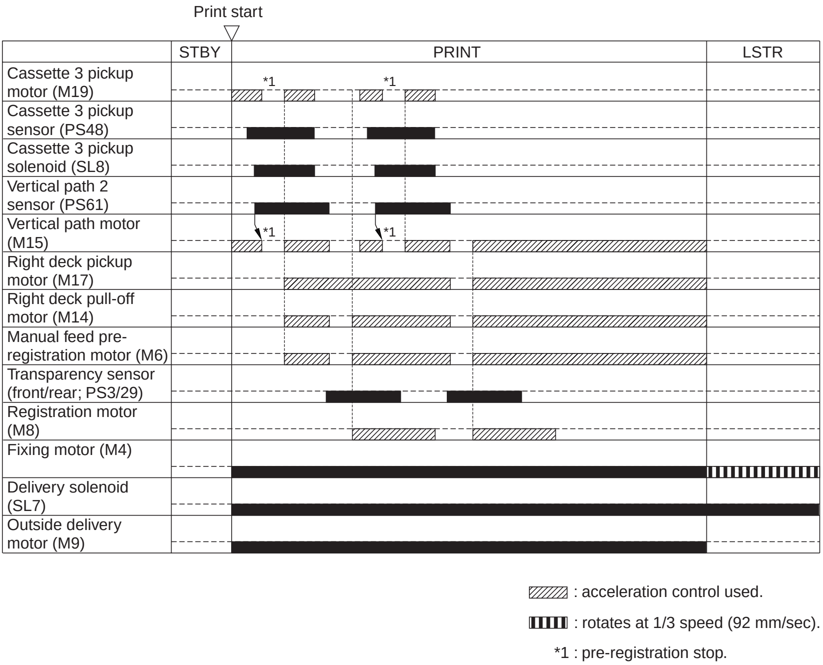
[3] Cassette 3/4 lifter sensor (PS51/PS57)

[4] Cassette 3/4 pickup sensor (PS48/PS54)

[5] Vertical path 3/4 sensor (PS62/PS63)
[6] Cassette 3/4 feed roller
[7] Cassette 3/4 separation roller
[8] Cassette 3/4 pickup roller
[9] Cassette 3/4 paper sensor

8.5.2 Basic Sequence

<A4, plain, 2 sheets continuous, secondary transfer speed at normal, face-up delivery>

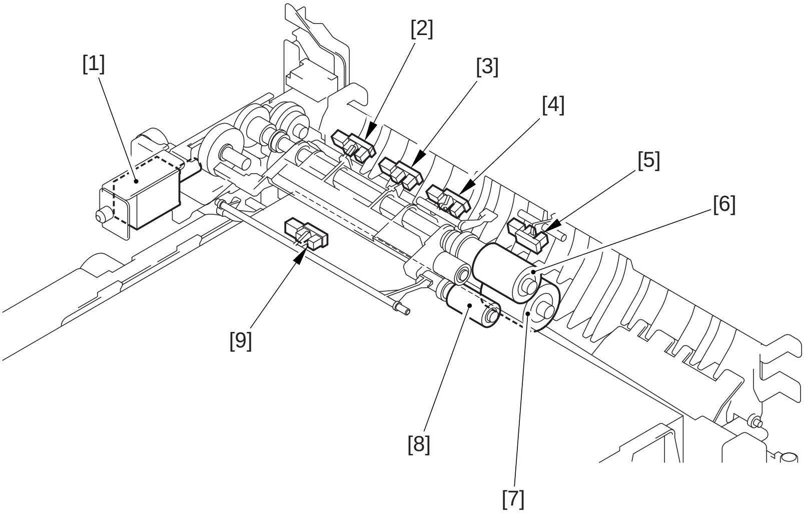

Print start
STBY
PRINT
LSTR
Cassette 3 pickup motor (M19)
Cassette 3 pickup sensor (PS48)
Cassette 3 pickup solenoid (SL8)
Vertical path 2 sensor (PS61)
Vertical path motor (M15)
Right deck pickup motor (M17)
Right deck pull-off motor (M14)
Manual feed pre-registration motor (M6)
Transparency sensor (front/rear; PS3/29)
Registration motor (M8)
Fixing motor (M4)
Delivery solenoid (SL7)
Outside delivery motor (M9)
*1
*1
*1
*1
▨ : acceleration control used.
▥ : rotates at 1/3 speed (92 mm/sec).
*1 : pre-registration stop.

F-8-25

8.5.3 Movement of the Lifter

When the cassette is slid inside the machine, the pickup roller starts to move down and, at the same time, the sensor flag leaves the lifter sensor, thus turning on the cassette lifter motor to move up the lifter.

When the lifter sensor detects the surface of paper, on the other hand, the lifter stops to move up. The limit sensor is used to prevent damage in the event that the lifter motor fails to stop.



F-8-26

[1] Cassette 3/4 pickup solenoid (SL8/SL9)
[2] Cassette 3/4 limit sensor (PS49/PS55)
[3] Cassette 3/4 lifter sensor (PS51/PS57)
[4] Cassette 3/4 pickup sensor (PS48/PS54)
[5] Vertical path 3/4 sensor(PS62/PS63)
[6] Cassette 3/4 feed roller
[7] Cassette 3/4 separation roller
[8] Cassette 3/4 pickup roller
[9] Cassette 3/4 paper sensor (PS50/PS56)

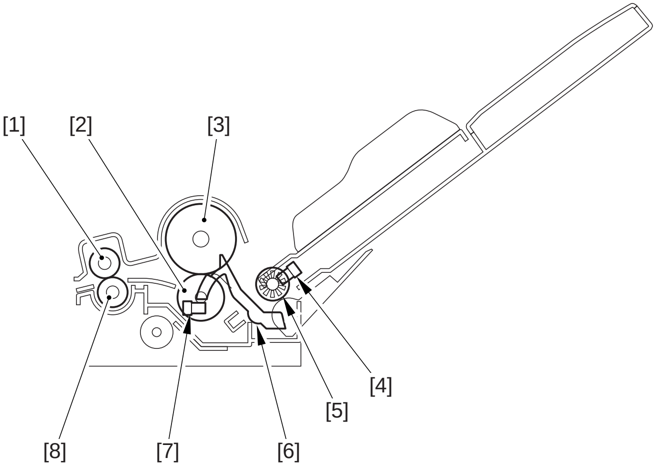
8.6 Manual Feed Pickup Unit

8.6.1 Overview

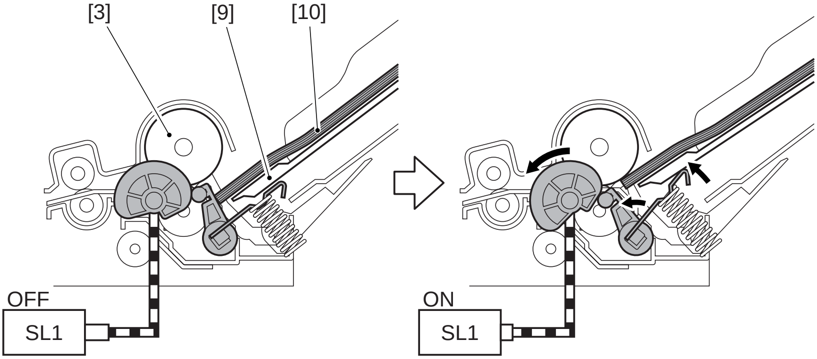
When the manual feed pickup solenoid (SL1) goes on, the manual feed holding plate is moved up; as a result, the paper on the tray is forced against the manual feed pickup roller, causing a single sheet of paper to be picked up by the manual feed pick up tray and the separation roller.

The manual feed roller, manual feed separation roller, and manual feed pull-off roller are driven by the pre-registration motor.

The paper on the tray of the manual feed pickup unit is monitored using the manual feed paper sensor (PS6). The last sheet of the tray, on the other hand, is identified using the last paper sensor (PS7).



F-8-27

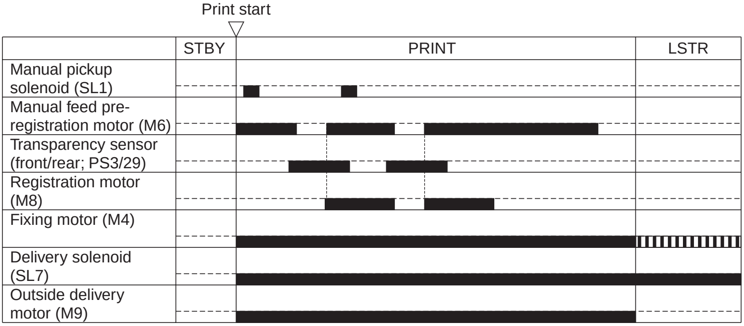


F-8-28

[1] Manual feed pull-off upper roller
[2] Manual feed separation roller
[3] Manual feed pickup roller
[4] Last paper sensor (PS7)
[5] Last paper detecting roll
[6] Paper sensor flag
[7] Manual feed paper sensor (PS6)
[8] Manual feed pull-off lower roller
[9] Manual feed holding plate
[10] Paper

8.6.2 Basic Sequence

<A4, plain, 2 sheets continuous, face-up delivery>

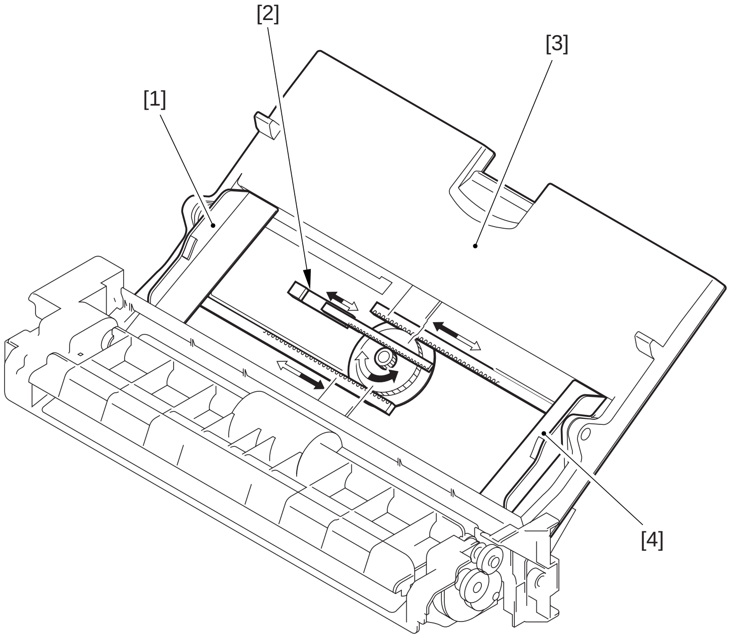

Print start
STBY
PRINT
LSTR
Manual pickup solenoid (SL1)
Manual feed pre-registration motor (M6)
Transparency sensor (front/rear; PS3/29)
Registration motor (M8)
Fixing motor (M4)
Delivery solenoid (SL7)
Outside delivery motor (M9)

▥ : rotates at 1/3 speed (92 mm/sec).

F-8-29

8.6.3 Identifying the Size of Paper

The machine identifies the width of paper with reference to the output of the variable resistor (SVR1) operating in keeping with the movement of the side guides. The width of the side guide on the manual feed tray is adjusted by the user by manually moving the guides.



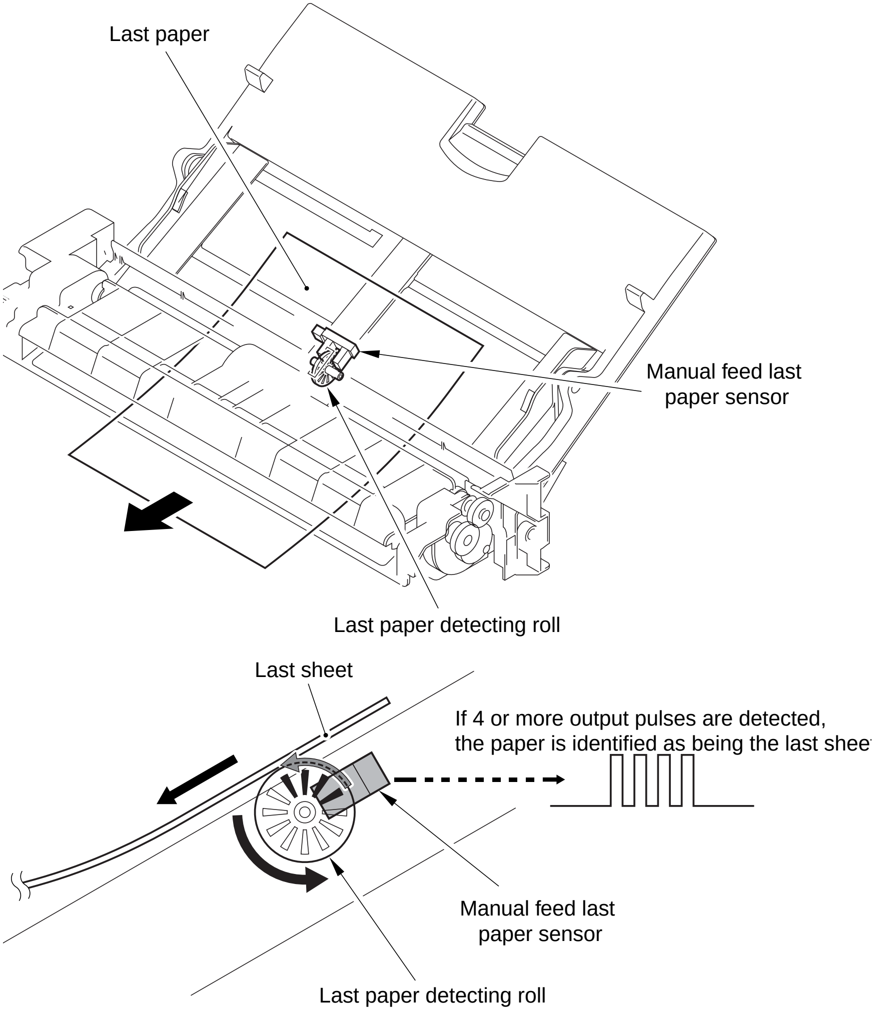
F-8-30

[1] Slide guide (rear)
[2] Variable resistor
[3] Manual feed tray
[4] Slid guide (front)

8.6.4 Identifying the Last Sheet

The machine uses a secondary transfer method, which requires it to identify the last sheet so that no image will be formed on the ITB in the absence of paper.

When the last paper pickup roll rotates, the slit cut into the roll causes the output of the last paper sensor (PS7) to take on a pulse wave form. The last paper pickup roller rotates only when the last sheet is picked up, and remains stationary at other times; if 4 or more output pulses are detected from the last paper sensor, therefore, the machine automatically assumes that the paper in question is the last sheet.


Last paper
Manual feed last paper sensor
Last paper detecting roll
Last sheet
If 4 or more output pulses are detected,
the paper is identified as being the last shee
Manual feed last paper sensor
Last paper detecting roll

F-8-31

8.7 Deck

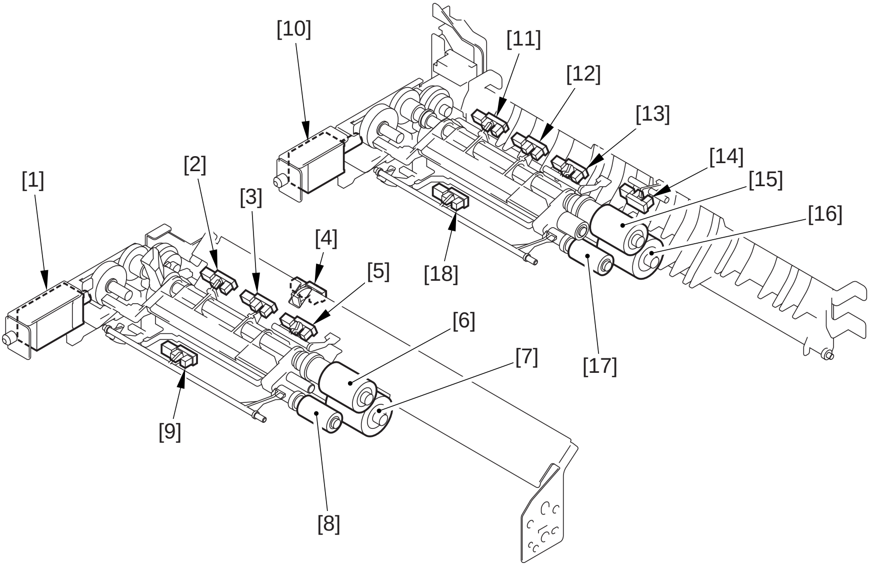
8.7.1 Overview

The paper inside the left/right front deck is held up by the work of the lifter so that the paper remains in contact with the pickup roller at all times. When the deck pickup motor goes on, the pickup roller starts to rotate to pick up paper.

The pickup roller leaves the paper when the deck pickup solenoid (SL6, SL7) goes on.

The feed roller and the separation roller serve to make sure that no more than a single sheet of paper is moved ahead to the paper path.

The pickup roller, feed roller, and separation roller are driven by the deck pickup motor (M17, M18).



F-8-32

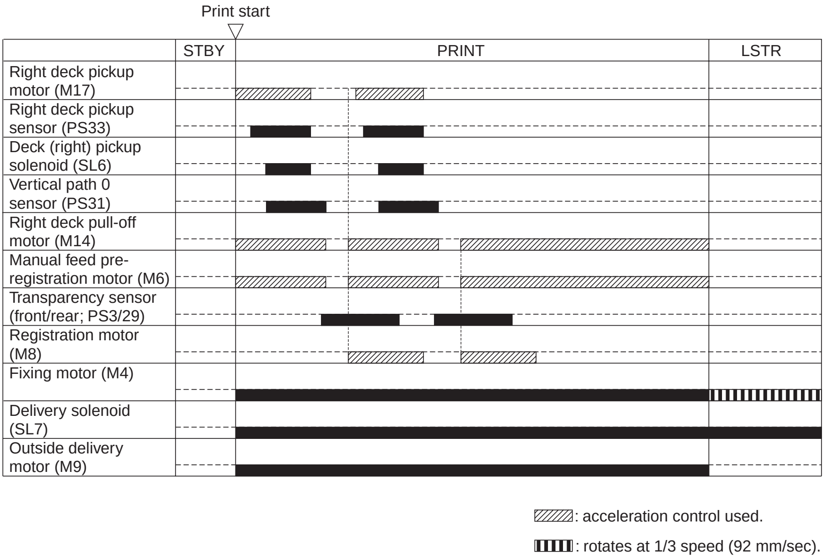
T-8-20

[1]	Left deck pickup solenoid	SL6	[10]	Right deck pickup solenoid	SL7
[2]	Left deck limit sensor	PS41	[11]	Right deck limit sensor	PS34
[3]	Left deck lifter sensor	PS43	[12]	Right deck lifter sensor	PS36

[4]	Left deck stationary sensor	PS47	[13]	Vertical path 1 sensor	PS60
[5]	Left deck pickup sensor	PS40	[14]	Right deck pickup sensor	PS33
[6]	Left deck feed roller		[15]	Right deck feed roller	
[7]	Left deck separation roller		[16]	Right deck separation roller	
[8]	Left deck pickup roller		[17]	Right deck pickup roller	
[9]	Left deck paper sensor	PS42	[18]	Right deck paper sensor	PS35

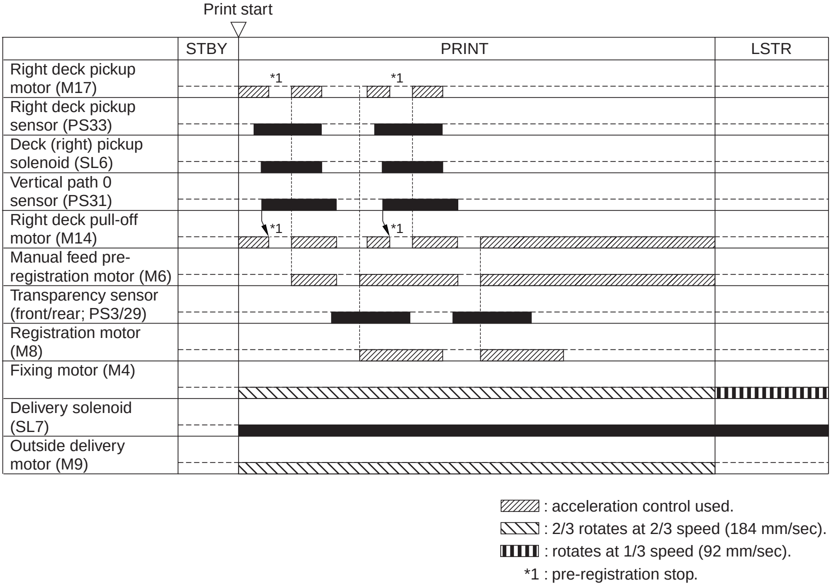
8.7.2 Basic Sequence

<Right Deck, A4, plain, 2 sheets continuous, secondary transfer speed at normal, face-up delivery>


Print start
STBY
PRINT
LSTR
Right deck pickup motor (M17)
Right deck pickup sensor (PS33)
Deck (right) pickup solenoid (SL6)
Vertical path 0 sensor (PS31)
Right deck pull-off motor (M14)
Manual feed pre-registration motor (M6)
Transparency sensor (front/rear; PS3/29)
Registration motor (M8)
Fixing motor (M4)
Delivery solenoid (SL7)
Outside delivery motor (M9)
▨: acceleration control used.
▥: rotates at 1/3 speed (92 mm/sec).

F-8-33

<Right Deck, A4, plain, 2 sheets continuous, secondary transfer speed at 2/3, face-up delivery>



F-8-34

8.7.3 Identifying the Size of Paper

The left/right front deck is not equipped with a mechanism used to identify the size of paper, and its configuration is switched in service mode. The left and right front decks may be switched to A4, B5, or LTR as follows:

(1) Change the position of the paper size guide plates of the deck.
(2) Register the new paper size in service mode.

Service Mode:

COPIER>OPTION>CST>P-SZ-C1
Right deck paper size selection
setting:
0: A4 (default); 1: B5, 2: LTR

COPIER>OPTION>CST-SZ-C2
Left deck paper size selection
setting:

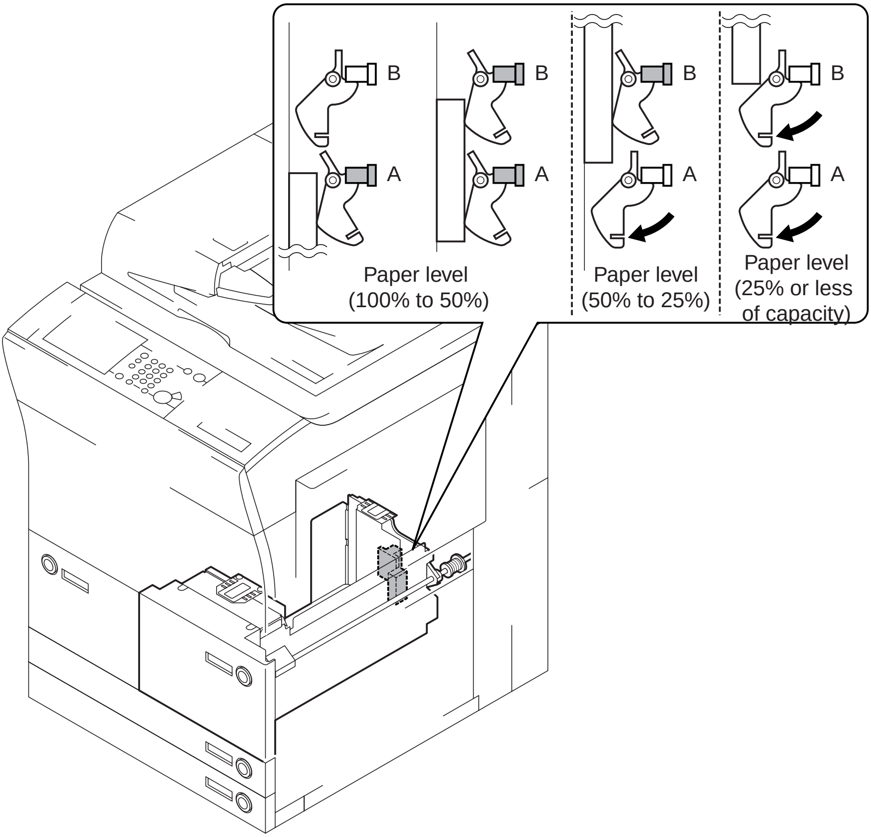
0: A4 (default); 1: B5, 2: LTR

8.7.4 Checking the Level of Remaining Paper

The level of paper remaining in the left/right front deck is checked using the following sensors:

T-8-21

Sensor	Right deck	Left deck
Paper level sensor A	PS37	PS44
Paper level sensor B	PS38	PS45
Paper sensor	PS35	SP42


B
A
B
A
B
A
B
A
Paper level
(100% to 50%)
Paper level
(50% to 25%)
Paper level
(25% or less
of capacity)

F-8-35

T-8-22

Paper level sensor A	**Paper level sensor B**	**Paper sensor**	**Level of paper**	**Indication on control panel**
ON	ON	OFF	from 100% to about 50% of capacity	☰
OFF	ON	OFF	from about 50% to about 25% of capacity	⚌

Paper level sensor A	Paper level sensor B	Paper sensor	Level of paper	Indication on control panel
OFF	OFF	OFF	about 25% or less of capacity	⊍
--	--	ON	no paper	⊔

8.8 Registration Unit

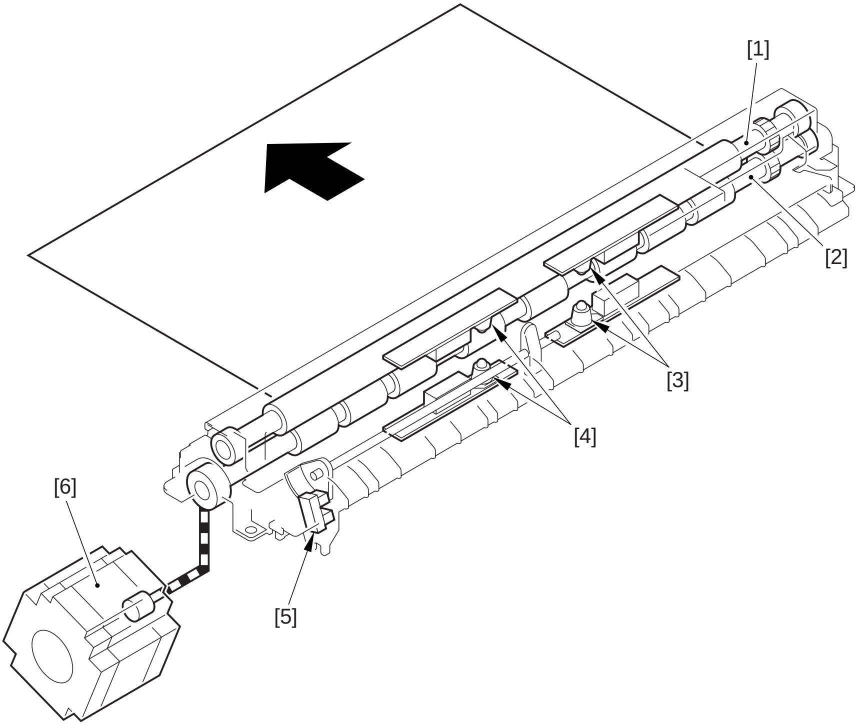
8.8.1 Overview

The registration roller is driven by the registration motor (M8), and is turned on and off to make sure that the paper will match the image on the intermediate transfer belt.

The registration assembly is equipped with 3 sensors: registration sensor (PS9), transparency sensor (front; PS3), and transparency sensor (rear; PS29).

When a transparency is used, the registration sensor (PS9) detects it. When the medium is not a transparency, the transparency sensor (front; PS3) and the transparency sensor (rear; PS29) detect it.

The transparency sensor (front) and the transparency sensor (rear) serve to find out whether the arriving medium is a transparency or not; if a plain paper is detected when the machine is in transparency mode or if a transparency is detected when the machine is in plain paper mode, the machine will identify the condition as indicating the presence of a jam and stop its operation.



F-8-36

[1] Registration upper roller

[2] Registration lower roller

[3] Transparency sensor (rear; PS29)

[4] Transparency sensor (front; PS3)

[5] Registration sensor

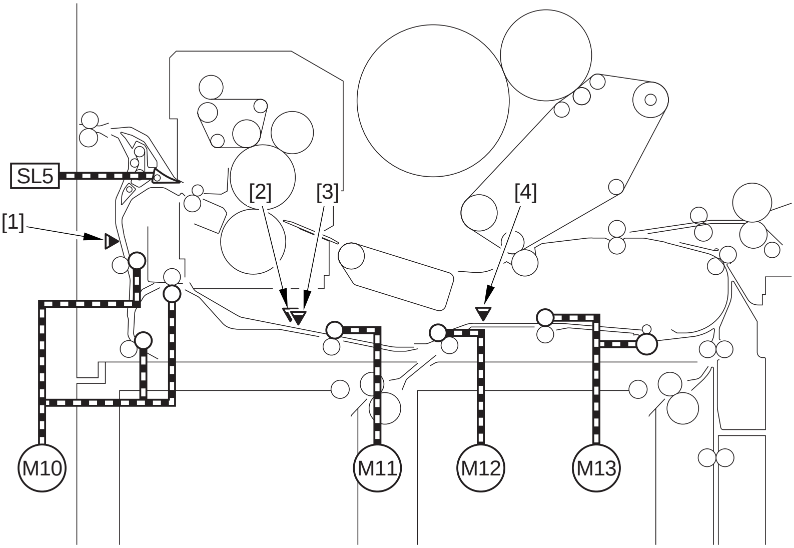
[6] Registration motor

8.9 Duplex Feeding Unit

8.9.1 Overview

To move the 1st side of a double-sided print, the delivery reversal solenoid (SL5) remains off and the reversing flapper is shifted up. When the paper moves past the reversal vertical path sensor (PS15) and reaches a specific point, the duplexing reversal motor (M10) stops/rotates in reverse to move the paper to the duplexing left feeding assembly.

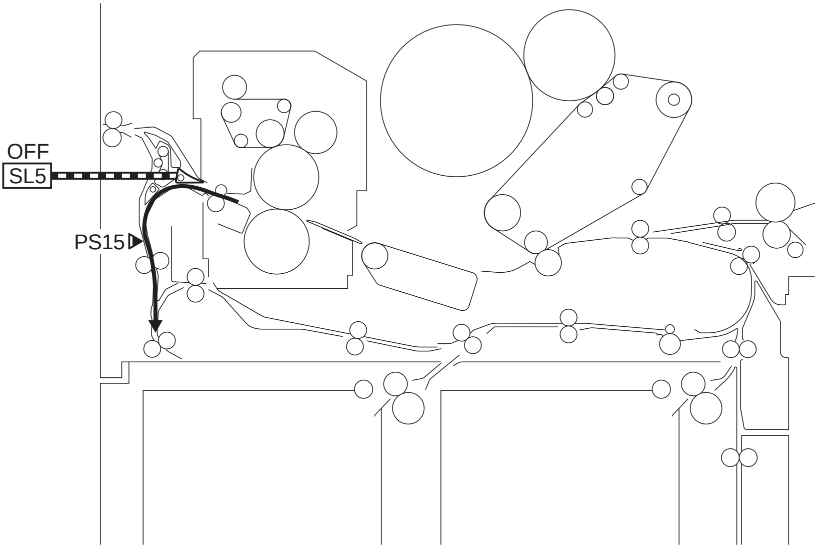
The paper is caused to arch in the duplexing left roller assembly for removal of any skew, all of which takes place at the same time as horizontal registration detection. Thereafter, the duplexing left motor (M11) goes on to move the paper to the re-pickup standby position, which starts at specific timing of operation to move the paper to the duplexing right feeding assembly and then to the registration roller assembly. The paper is never stopped in the duplexing right feeding assembly.



F-8-37

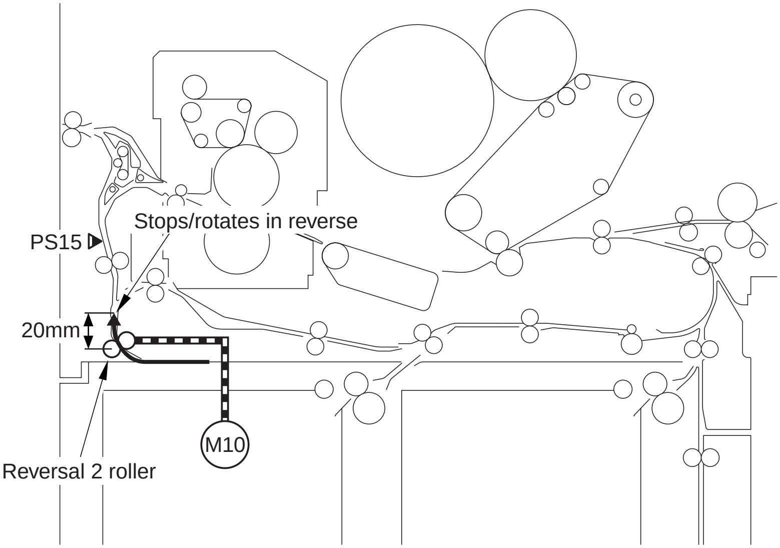
[1] Reversal vertical path sensor (PS15)
[2] Horizontal registration sensor (PS24)
[3] Duplexing left sensor (PS17)
[4] Duplexing confluence sensor (PS18)

1) With the delivery reversing solenoid (SL5) remaining off, the reversing flapper is in up position so that the paper moves to the reversal vertical path assembly.



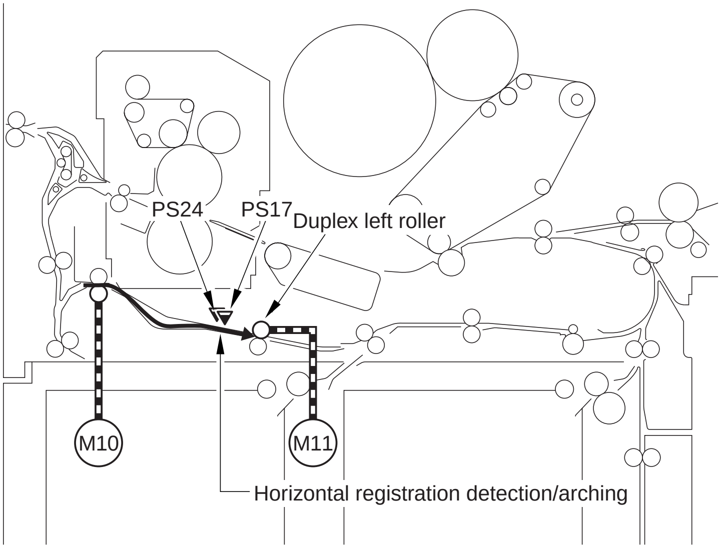
F-8-38

2) When the trailing edge of paper reaches a point about 20 mm from the reversing 2 roller, the duplexing reversal motor (M10) stops/rotates in reverse to move the paper to the duplexing left feeding assembly.


Stops/rotates in reverse
PS15
20mm
M10
Reversal 2 roller

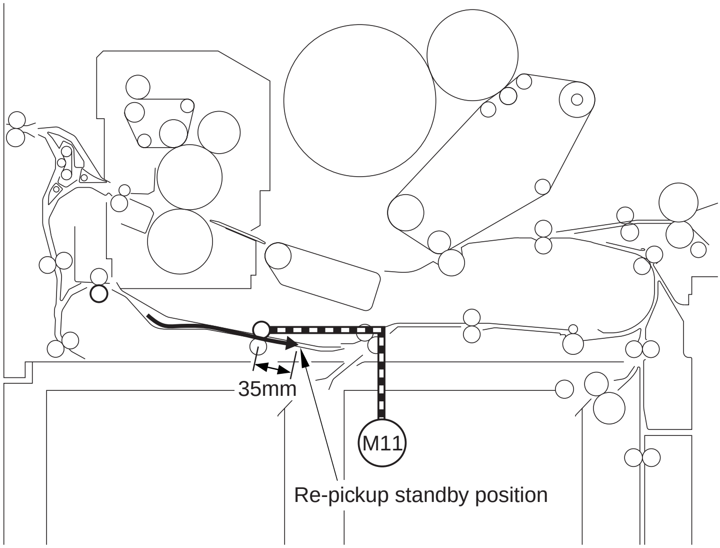
F-8-39

3) The paper moves to the duplexing left feeding assembly, and the horizontal registration sensor (PS24) checks the horizontal registration. The paper is also butted against the duplexing left roller so that it arches.


PS24
PS17
Duplex left roller
M10
M11
Horizontal registration detection/arching

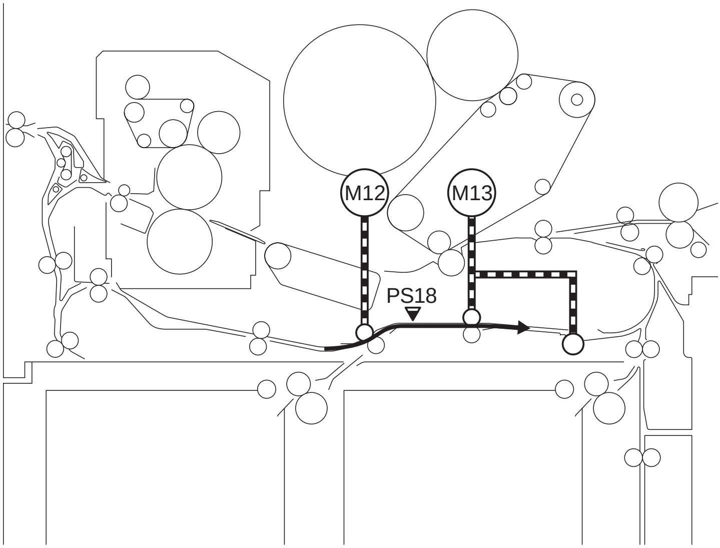
F-8-40

4) When the paper moves past the duplexing left roller, it stops when its leading edge reaches a point 35 mm from the duplexing left roller, remaining in wait for the next operation.


35mm
M11
Re-pickup standby position

F-8-41

5) A specific period of time thereafter, the duplexing left motor rotates to move the paper to the duplexing right feeding assembly and then to the registration roller assembly. Paper will never stop in the duplexing right feeding assembly.



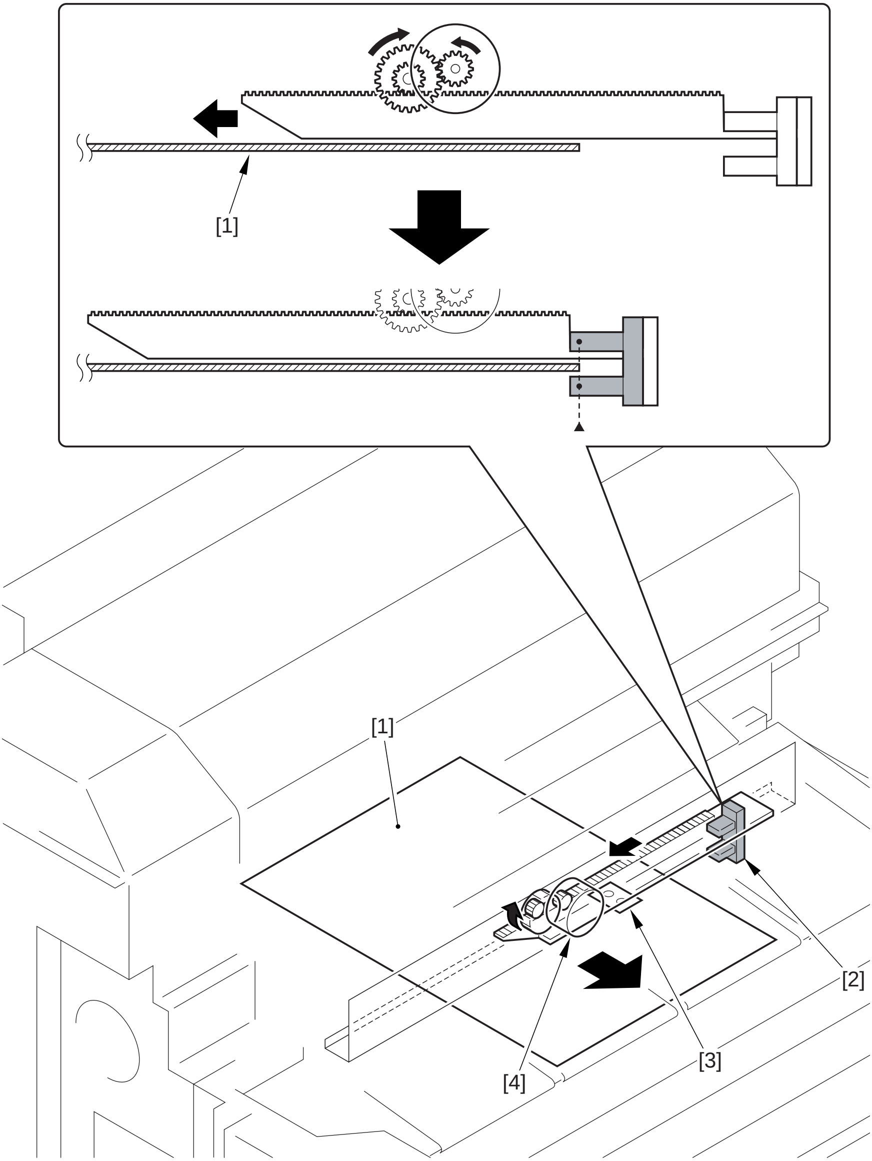
F-8-42

8.9.2 Detecting the Horizontal Registration Position

The machine executes a duplexing registration sensor home position search when the main power switch is turned on, front cover is opened/closed, manual feed unit is opened/closed, lower right cover is opened/closed, power save function is reset, or printing ends, causing the sensor to move to the point of 13x19 paper detection.

Inside the duplexing left feeding assembly, the paper reaches the duplexing left sensor (PS17); thereafter, the horizontal registration motor (M28) goes on, and the horizontal registration sensor (PS24) starts a search for the edge of the paper.

The search start position is set to a point of the paper edge (in the cassette of A4, 165 mm from the middle of the unit) with reference to the distance of the slide guides on the manual feed tray and the cassette/deck size at the start of copying operation.



F-8-43

[1] Paper

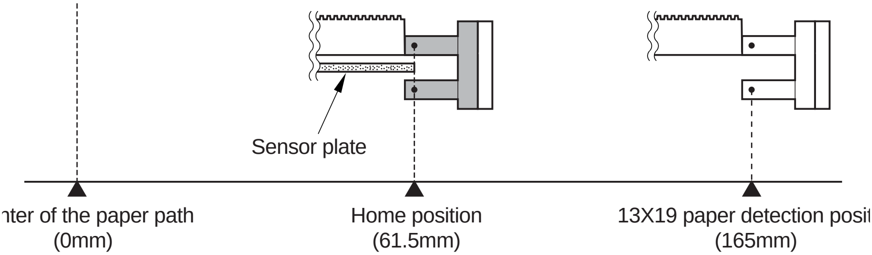
[2] Horizontal registration sensor (PS24)
[3] Sensor plate
[4] Horizontal registration motor (M28)

a. Horizontal Registration Search

1) After a home position search*1, the horizontal registration sensor (PS24) moves to the 13x19 paper detection position *2.

*1. Where the horizontal registration sensor detects the sensor plate (i.e., 61.5 mm toward the rear from the middle of the feeding assembly).

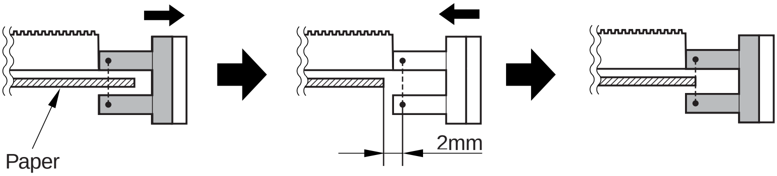
*2. 165 mm toward the rear from the middle of the feeding assembly.



F-8-44

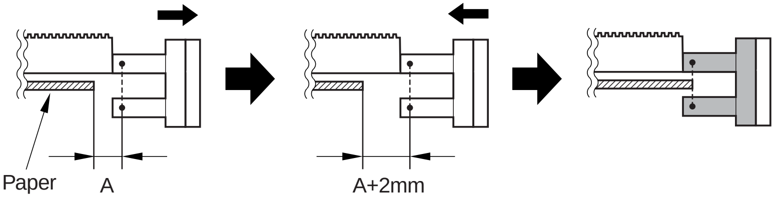
2) The horizontal registration sensor checks the presence/absence of paper.

2-1) If the presence of paper is identified in step 1., the horizontal registration sensor is moved away from the paper until it detects the absence of paper; after it has been moved 2 mm from the paper, it is then moved closer to the paper once again, identifying the point at which paper is detected as the edge of paper.



F-8-45

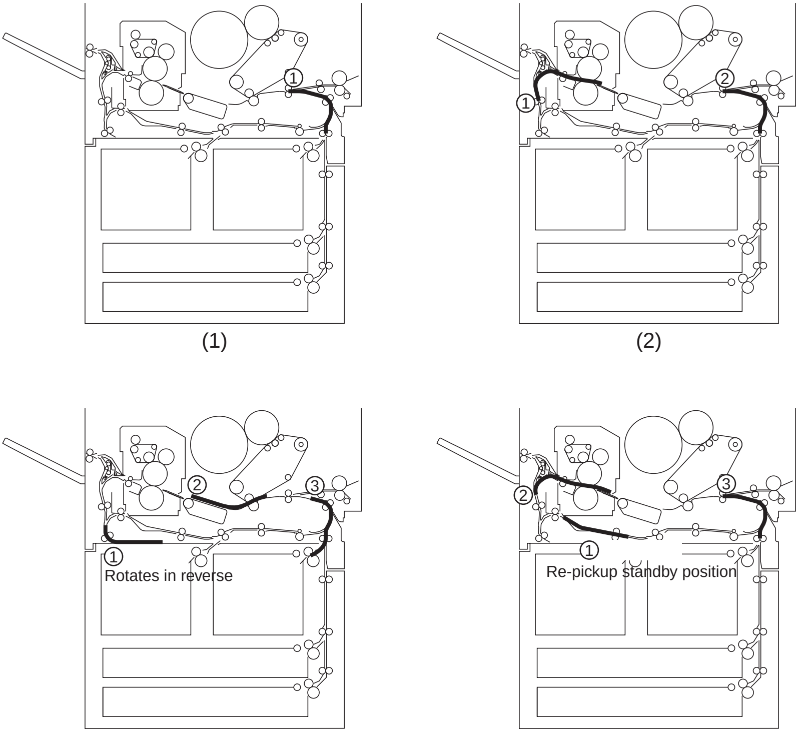
2-2) If the absence of paper is identified, the horizontal registration sensor is moved away by 2 mm from the paper and then back closer to the paper, identifying the point at which paper is detected as the edge of the paper.



F-8-46

3) The machine counts the number of motor pulses generated when the horizontal registration sensor is moved in step 2-1 or 2-2 to find out the displacement of paper, thus determining the image write start position (for each single pulse, the sensor moves over a length of 0.157 mm).

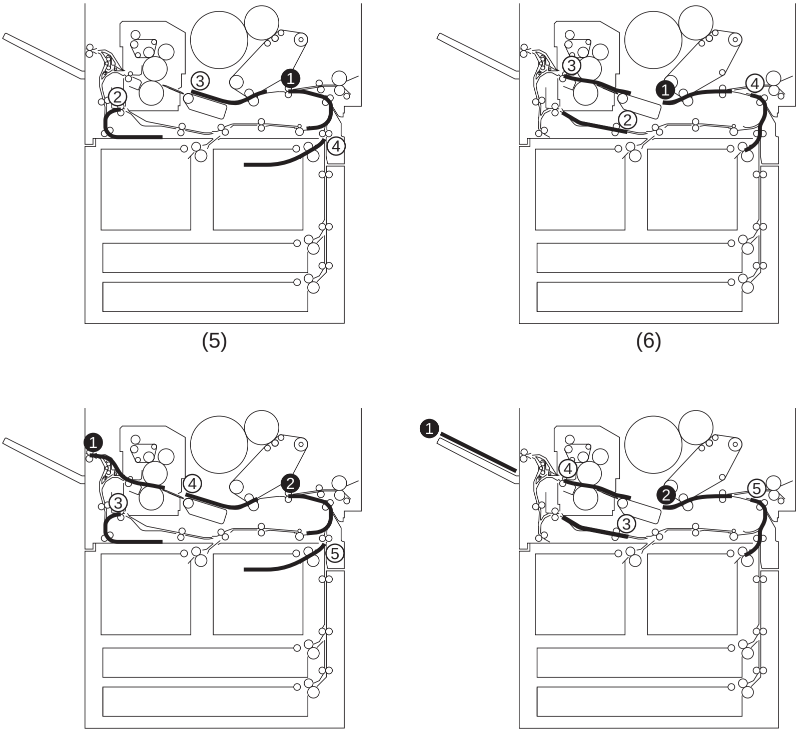
8.9.3 A5, 5 Sheets in Circulation


①
①
②
②
③
①
Rotates in reverse
②
③
①
Re-pickup standby position

(1) (2)

(3) (4)

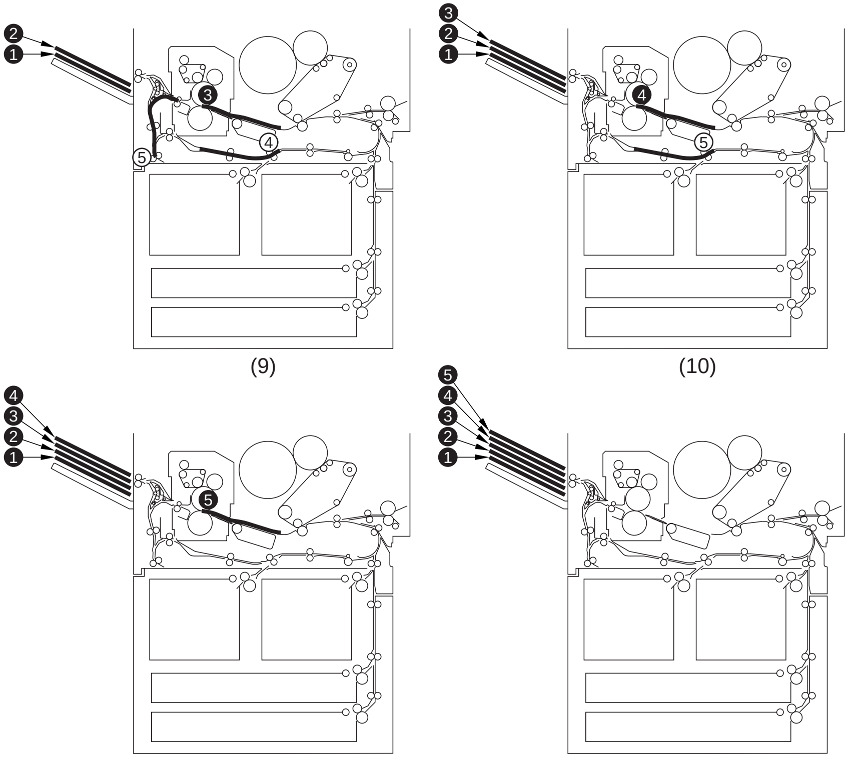
F-8-47


③
❶
②
④
③
❶
④
②
❶
④
②
③
⑤
❶
④
❷
⑤
③

(5) (6)

(7) (8)

F-8-48

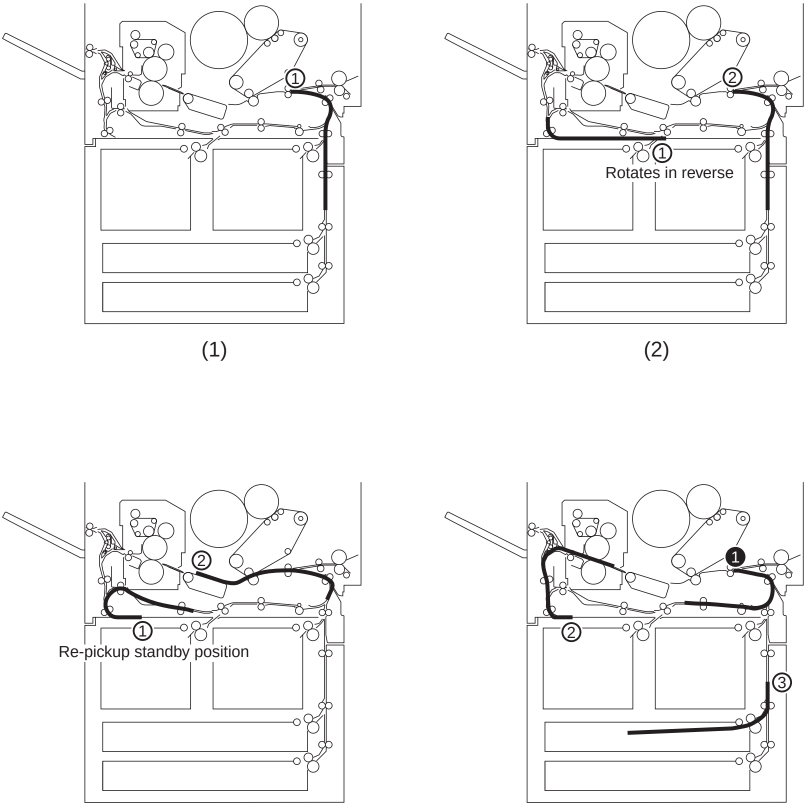

❷
❶
❸
④
⑤
❸
❷
❶
❹
⑤
❹
❸
❷
❶
❺
❺
❹
❸
❷
❶

(9) (10)

(11) (12)

F-8-49

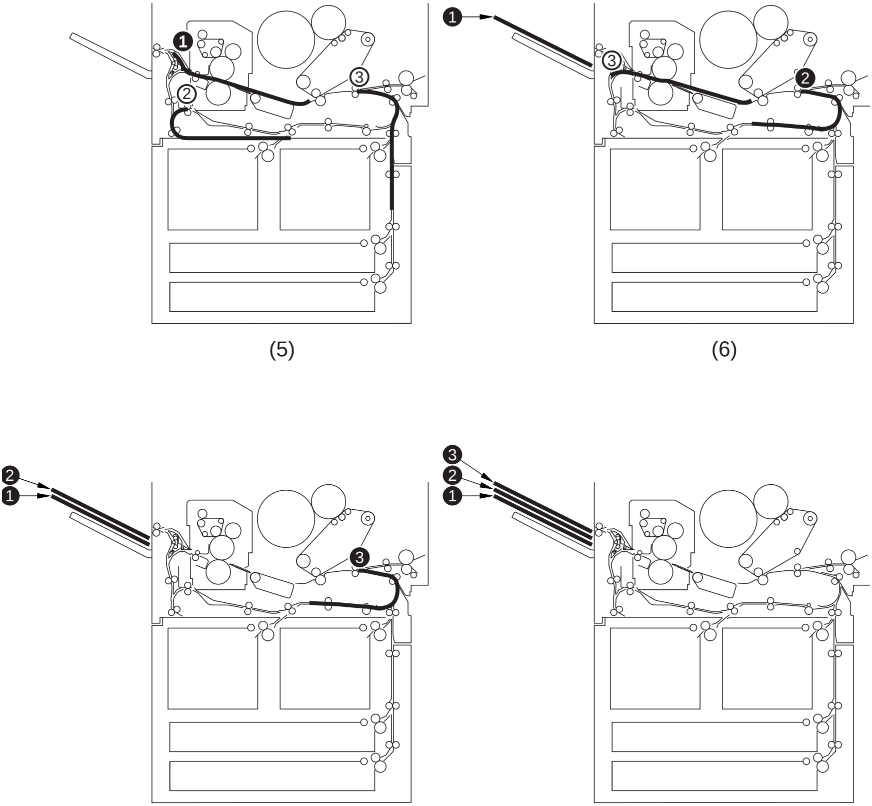
8.9.4 A3, 3 Sheets in Circulation


①
②
①
Rotates in reverse
②
①
Re-pickup standby position
❶
②
③

(1) (2)

(3) (4)

F-8-50


❶
②
③
❶
③
❷
❷
❶
❸
❸
❷
❶

(5) (6)

(7) (8)

F-8-51

8.10 Delivery

8.10.1 Overview

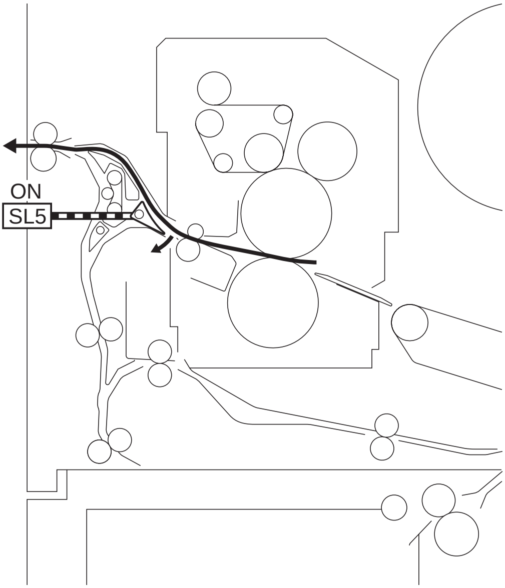
The machine discharges paper either face-up or face-down:

T-8-23

Mode of delivery	Mode of operation
Face-up	- When making single print of a single original - When making multiple prints of a single original (however, face-down if a finisher is installed) - If heavy paper 3 is selected - If the source of paper is from the manual feed tray and the paper is not plain paper (default size)
Face-down	When the selected mode of operation is other than the above; however, face-down delivery may be selected for the above modes using the following service mode item: COPIER>OPERATION>BODY>FDW-DLV (valid only if no finisher is installed).

8.10.2 Face-Up Delivery

When the delivery solenoid (SL5) goes on, the flapper shifts down to move the paper to the delivery assembly.

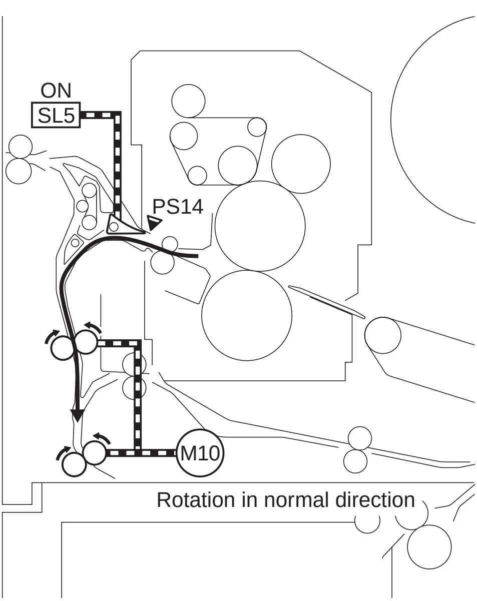


F-8-52

8.10.3 Face-Down Delivery

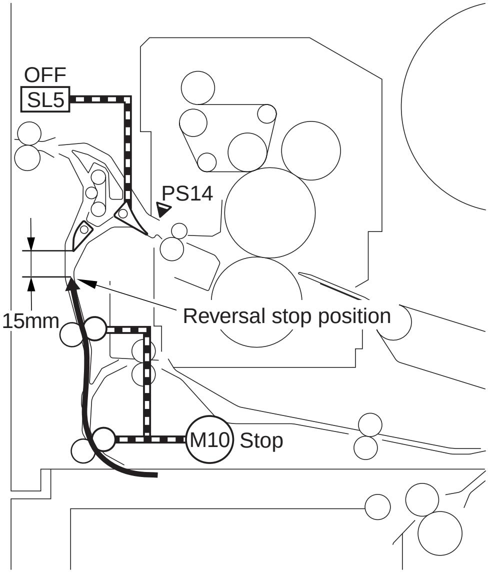
The machine operates as follows when in face-down delivery mode:

1) The delivery solenoid (SL5) is off, and the paper is moved in the direction of the duplexing feeding assembly.


ON
SL5
PS14
M10
Rotation in normal direction

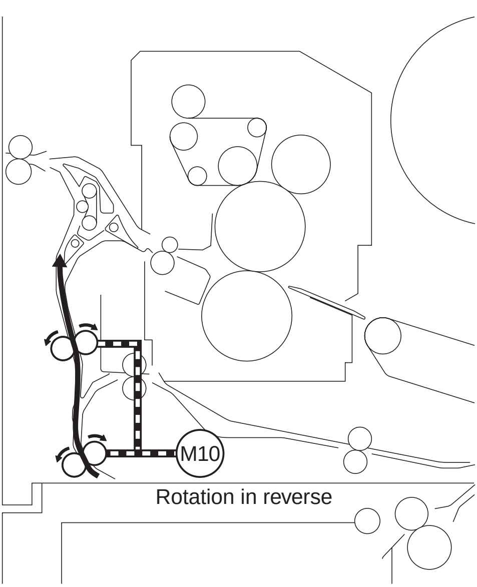
F-8-53

2) A specific period of time after the reversal sensor (PS14) goes on, the duplexing reversal motor (M10) rotates in normal direction; it then stops when the trailing edge of paper reaches the reversal stop position (15 mm farther down the reversal confluence point).


OFF
SL5
PS14
15mm
Reversal stop position
M10 Stop

F-8-54

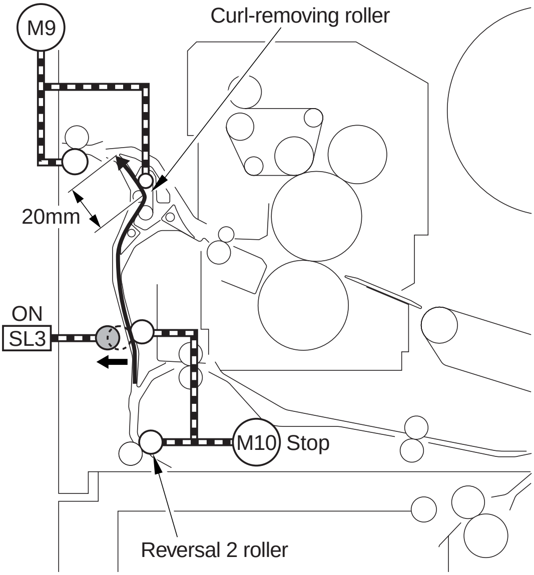
3) In 100 msec, the duplexing reversal motor (M10) rotates in reverse to move the paper with the trailing edge first in the direction of delivery.



F-8-55

4) When the leading edge of preceding paper moves past the curl removing roller by 20 mm, the reversal shifting solenoid (SL3) goes on to move away the reversal 1 roller in preparation for the arrival of the following paper.

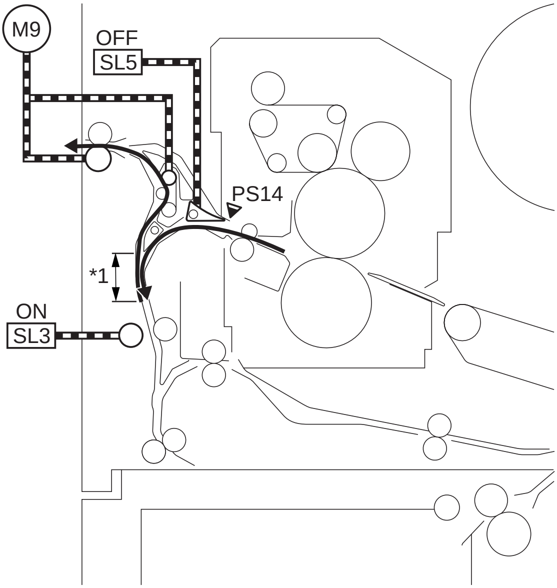
The duplexing reversal motor (M10) stops after the trailing edge of the paper has moved past the reversal 2 roller.


M9
Curl-removing roller
20mm
ON
SL3
M10
Stop
Reversal 2 roller

F-8-56

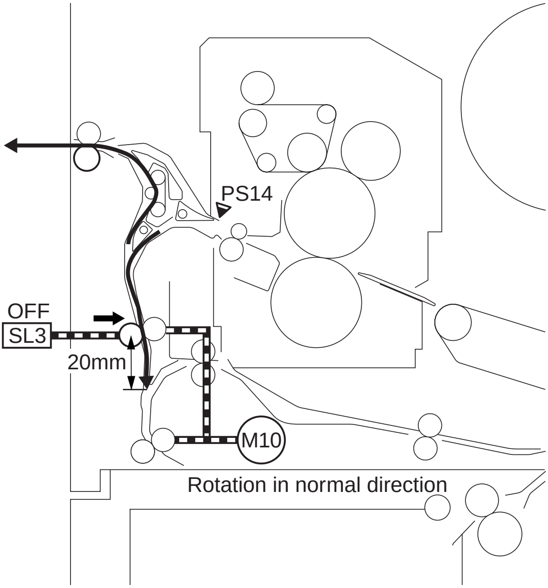
5) The length of overlap between the trailing edge of the preceding paper and the leading edge of the following paper is 42 mm at maximum.

*1. The length of overlap between the trailing edge of the preceding paper and the leading edge of the following paper is 42 mm at maximum.



F-8-57

6) A specific period of time after the reversal sensor (PS14) goes on in response to the arrival of the following paper, the duplexing reversal motor (M10) starts to move in normal direction. When the leading edge of the following paper moves past the reversal 1 roller by about 20 mm, the reversal shifting solenoid (SL3) goes off so that the following paper is moved to the reversal stop position. Then, the machine repeats step 3) and thereafter.


PS14
OFF
SL3
20mm
M10
Rotation in normal direction

F-8-58

8.11 Parts Replacement Procedure

8.11.1 Cassette Pickup Unit

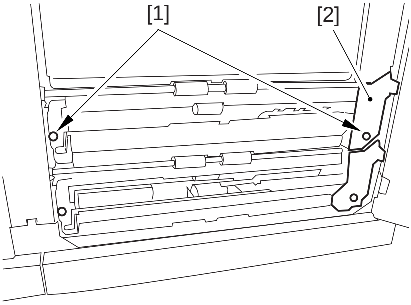
8.11.1.1 Removing the Cassette Pickup Unit

1) Slide out the cassette 3/4.

2) Remove the lower rear right cover.

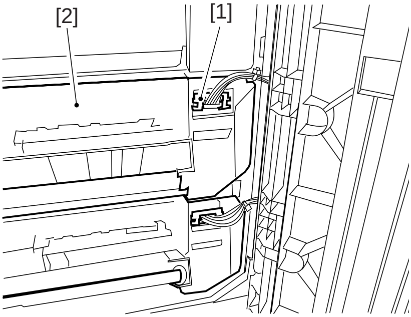
3) Open the lower right cover.

4) Remove the 2 screws [1], and disconnect the connector cover [2].



F-8-59

5) Disconnect the connector [1], and detach the pickup unit (cassette 3/4) [2].

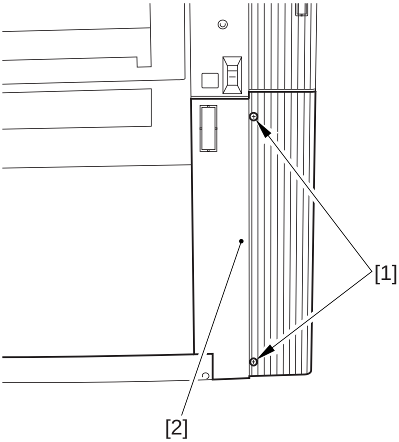


F-8-60

8.11.2 Cassette Pickup Motor

8.11.2.1 Removing the Right Cover (lower rear)

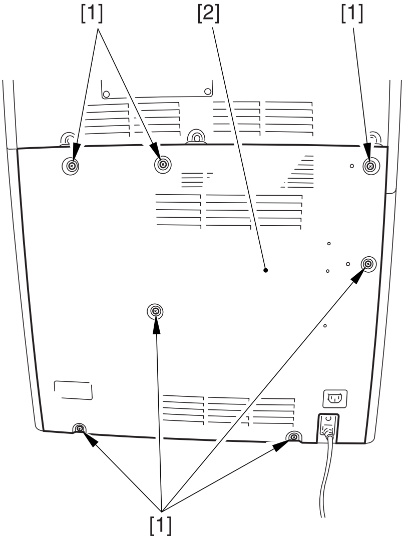
1) Remove the 2 screws [1],and detach the right cover (lower rear) [2].



F-8-61

8.11.2.2 Removing the Rear Cover (lower)

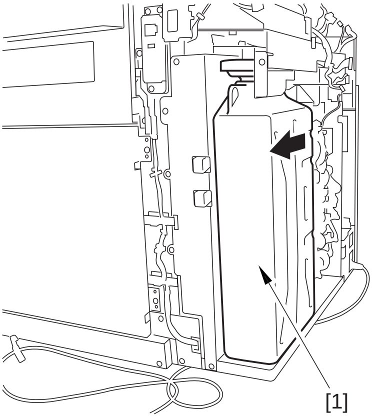
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-62

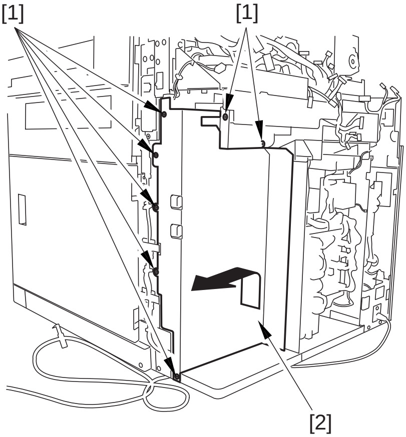
8.11.2.3 Removing the Waste Toner Bottle Base

1) Remove the waste toner bottle [1].



F-8-63

2) Remove the 7 screws [1], and lift the waste toner bottle base [2] to detach it in the direction of the arrow.

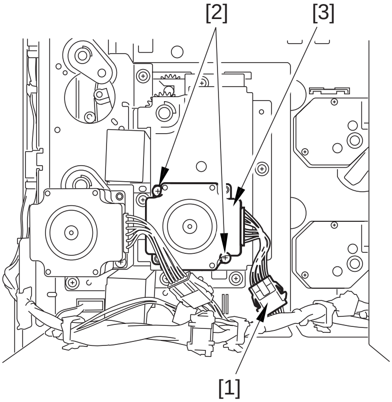


F-8-64

8.11.2.4 Removing the Cassette Pickup Motor

1) Disconnect the connector [1], and

remove the 2 screws [2]; then, detach the cassette pickup motor [3].

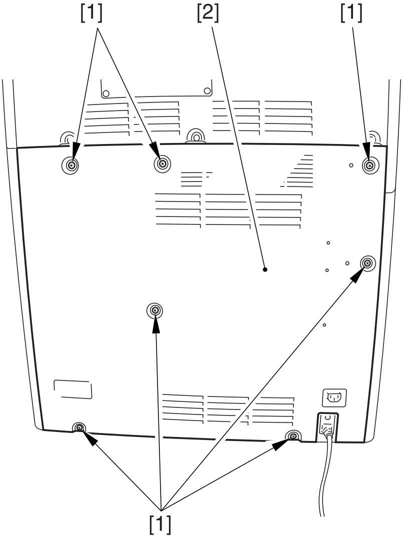


F-8-65

8.11.3 Cassette Lifter Motor

8.11.3.1 Removing the Rear Cover (lower)

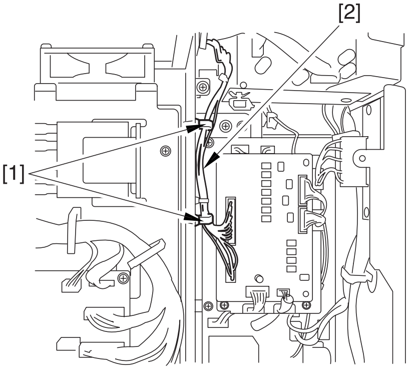
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-66

8.11.3.2 Removing the DC Power Supply Unit

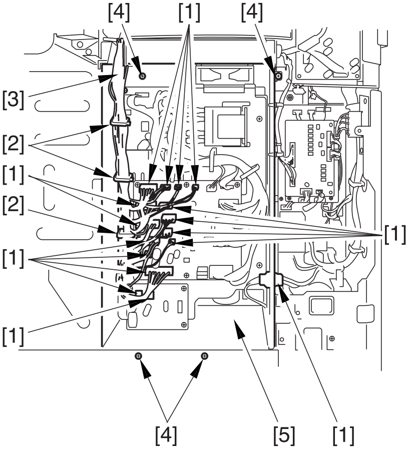
1) Open the 2 wire saddles [1], and free the harness [2].



F-8-67

2) Disconnect the 16 connectors [1], and open the 3 wire saddles [2] to free the harness [3].

3) Remove the 4 screws [4], and detach the DC power supply unit [5].

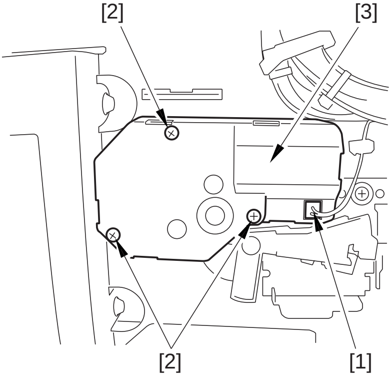


F-8-68

8.11.3.3 Removing the Cassette Lifter Motor

1) Slide out the cassette 3 or 4.

2) Disconnect the connector [1], and remove the 3 screws [3]; then, detach the cassette lifter motor [3].

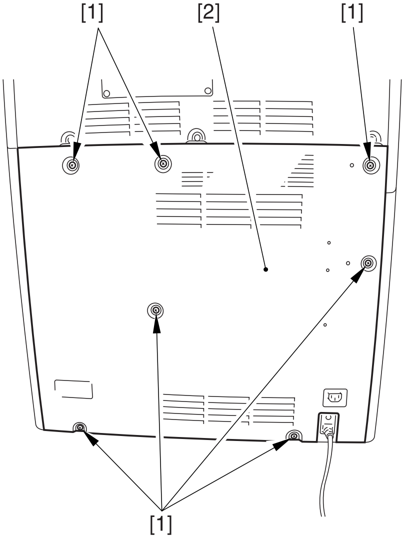


F-8-69

8.11.4 Left Deck Lifter Motor

8.11.4.1 Removing the Rear Cover (lower)

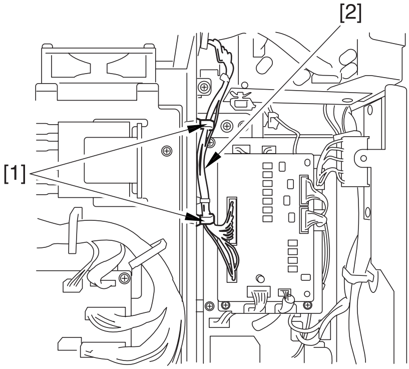
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-70

8.11.4.2 Removing the DC Power Supply Unit

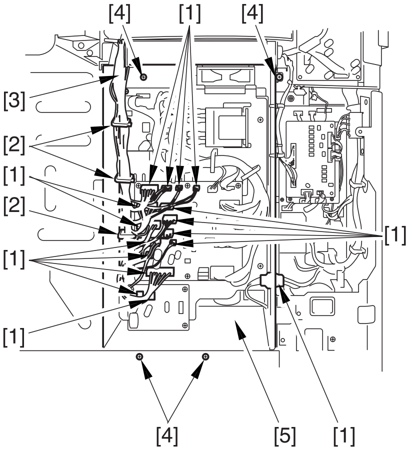
1) Open the 2 wire saddles [1], and free the harness [2].



F-8-71

2) Disconnect the 16 connectors [1], and open the 3 wire saddles [2] to free the harness [3].

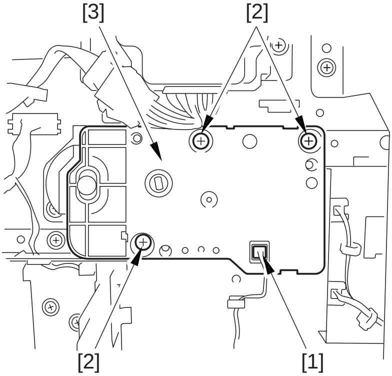
3) Remove the 4 screws [4], and detach the DC power supply unit [5].



F-8-72

8.11.4.3 Removing the Left Deck Lifter Motor

1) Disconnect the connector [1], and remove the 3 screws [2]; then, detach the left deck lift motor [3].

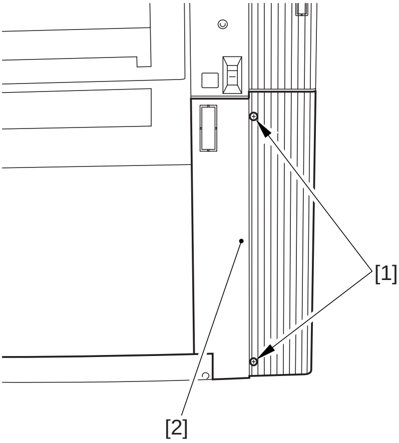


F-8-73

8.11.5 Right Deck Lifter Motor

8.11.5.1 Removing the Right Cover (lower rear)

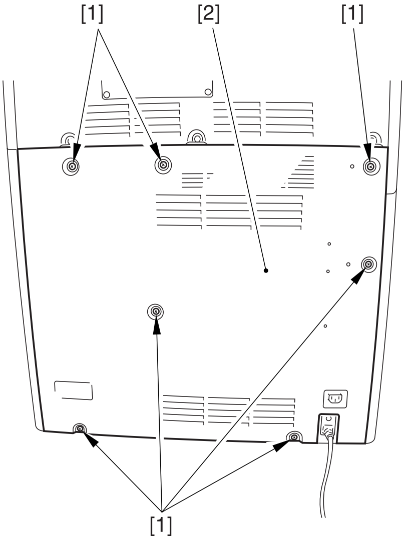
1) Remove the 2 screws [1],and detach the right cover (lower rear) [2].



F-8-74

8.11.5.2 Removing the Rear Cover (lower)

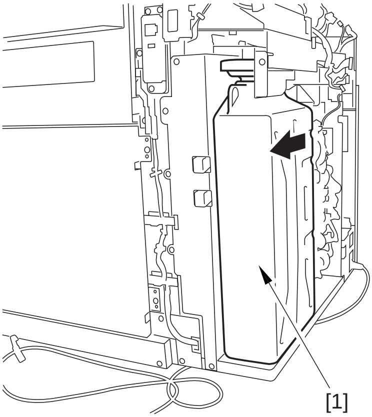
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-75

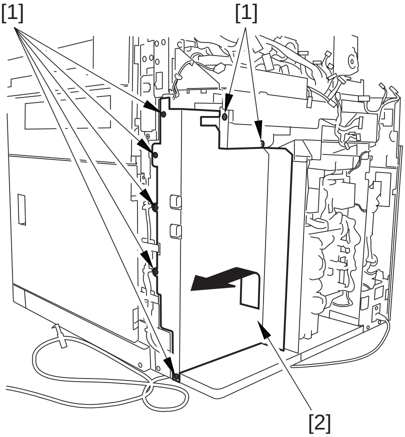
8.11.5.3 Removing the Waste Toner Bottle Base

1) Remove the waste toner bottle [1].



F-8-76

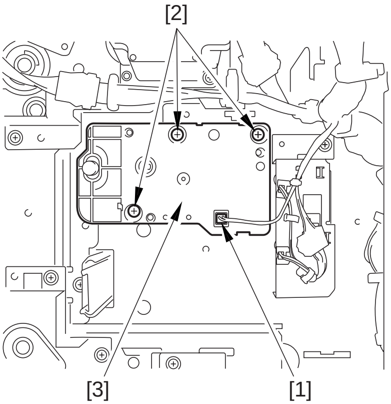
2) Remove the 7 screws [1], and lift the waste toner bottle base [2] to detach it in the direction of the arrow.



F-8-77

8.11.5.4 Removing the Right Deck Lifter Motor

1) Disconnect the connector [1], and remove the 3 screws [2]; then, detach the right deck lifter motor [3].

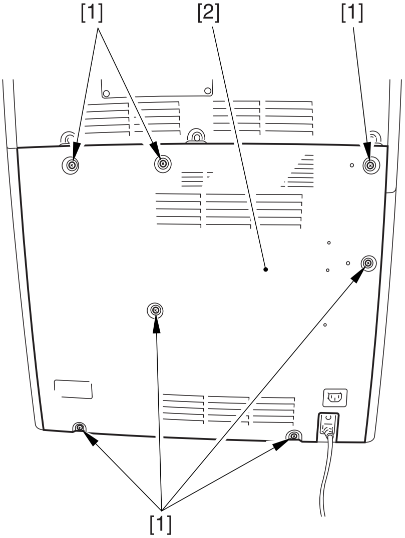


F-8-78

8.11.6 Left Deck Pickup Motor

8.11.6.1 Removing the Rear Cover (lower)

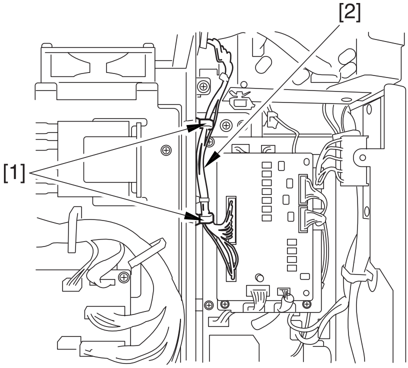
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-79

8.11.6.2 Removing the DC Power Supply Unit

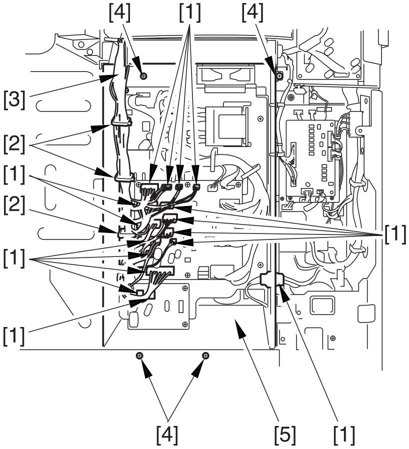
1) Open the 2 wire saddles [1], and free the harness [2].



F-8-80

2) Disconnect the 16 connectors [1], and open the 3 wire saddles [2] to free the harness [3].

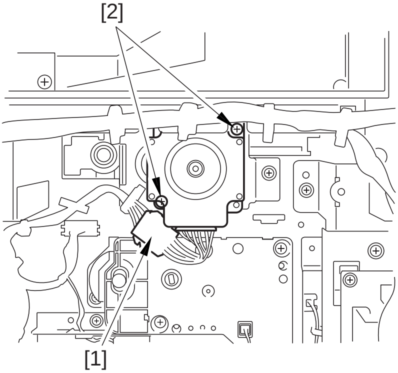
3) Remove the 4 screws [4], and detach the DC power supply unit [5].



F-8-81

8.11.6.3 Removing the Left Deck Pickup Motor

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the left deck pickup motor [3].

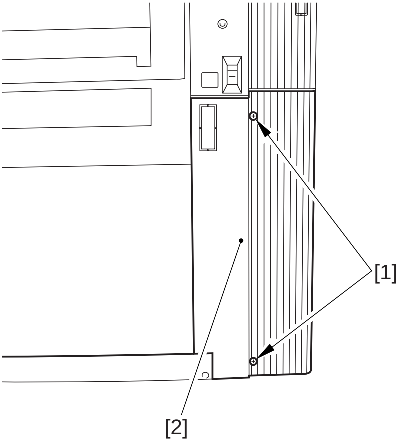


F-8-82

8.11.7 Right Deck Pickup Motor

8.11.7.1 Removing the Right Cover (lower rear)

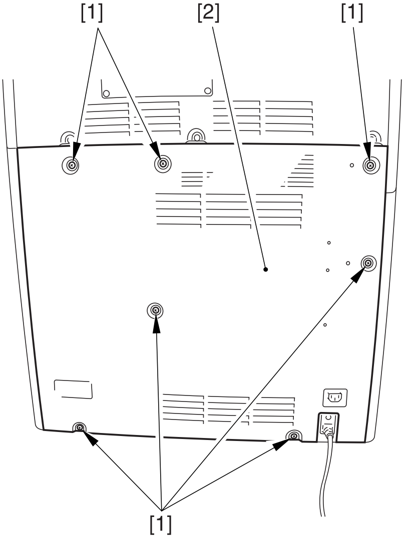
1) Remove the 2 screws [1],and detach the right cover (lower rear) [2].



F-8-83

8.11.7.2 Removing the Rear Cover (lower)

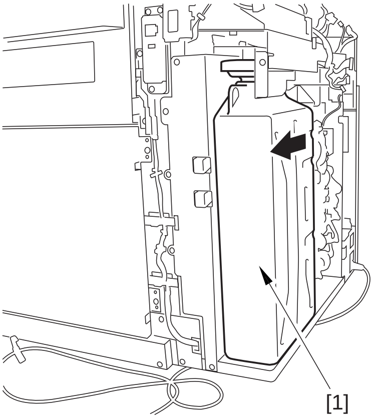
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-84

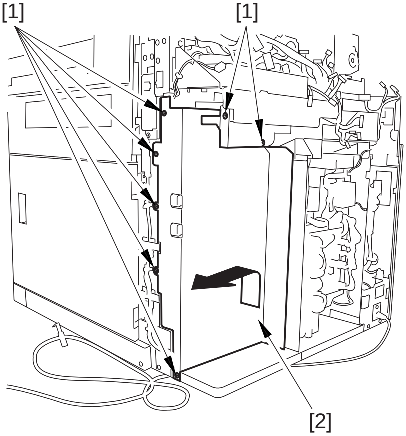
8.11.7.3 Removing the Waste Toner Bottle Base

1) Remove the waste toner bottle [1].



F-8-85

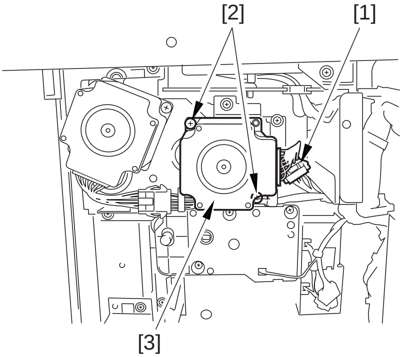
2) Remove the 7 screws [1], and lift the waste toner bottle base [2] to detach it in the direction of the arrow.



F-8-86

8.11.7.4 Removing the Right Deck Pickup Motor

Disconnect the connector [1], and remove the 2 screws [2]; then, detach the right deck pickup motor [3].

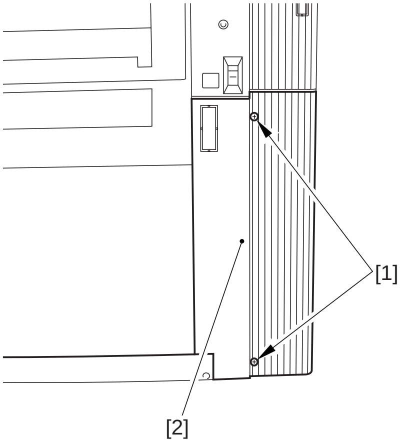


F-8-87

8.11.8 Vertical Path Motor

8.11.8.1 Removing the Right Cover (lower rear)

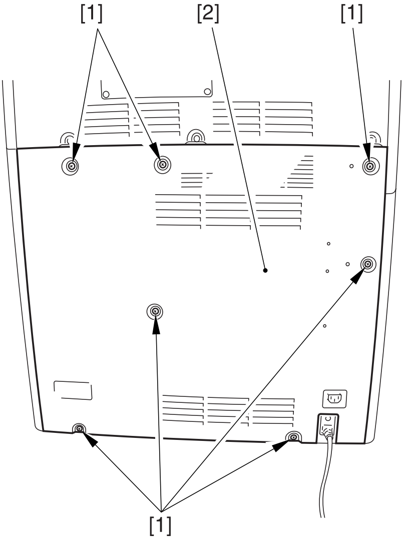
1) Remove the 2 screws [1],and detach the right cover (lower rear) [2].



F-8-88

8.11.8.2 Removing the Rear Cover (lower)

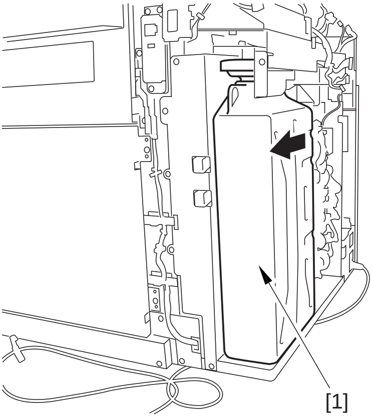
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-89

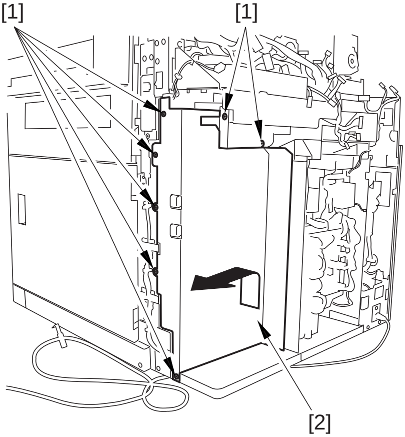
8.11.8.3 Removing the Waste Toner Bottle Base

1) Remove the waste toner bottle [1].



F-8-90

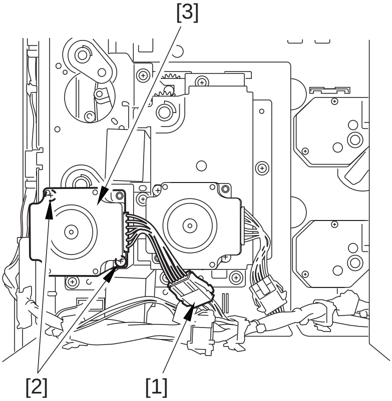
2) Remove the 7 screws [1], and lift the waste toner bottle base [2] to detach it in the direction of the arrow.



F-8-91

8.11.8.4 Removing the Vertical Path Motor

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the vertical path motor [3].

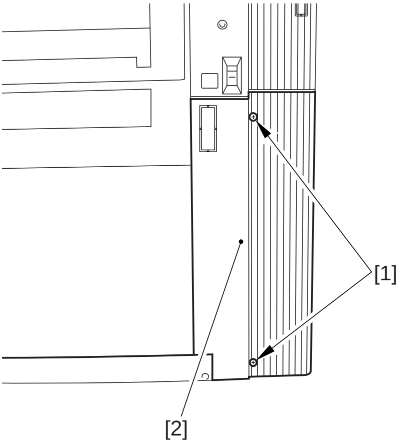


F-8-92

8.11.9 Right Deck Pull-Off Motor

8.11.9.1 Removing the Right Cover (lower rear)

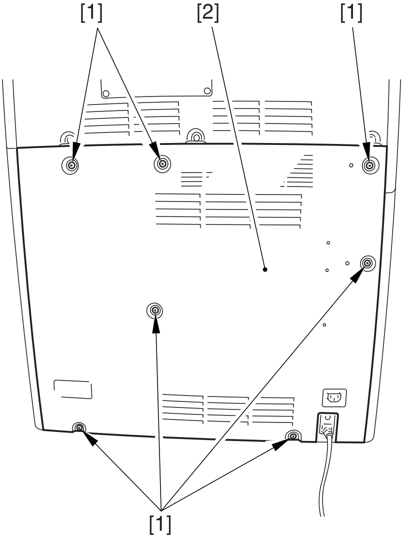
1) Remove the 2 screws [1],and detach the right cover (lower rear) [2].



F-8-93

8.11.9.2 Removing the Rear Cover (lower)

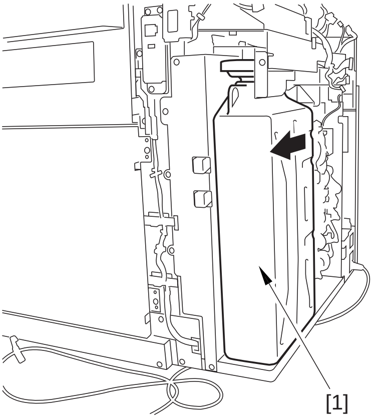
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-94

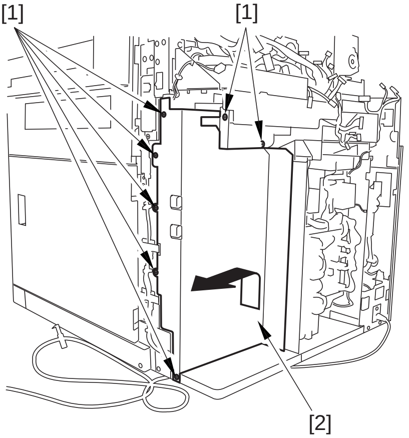
8.11.9.3 Removing the Waste Toner Base

1) Remove the waste toner bottle [1].



F-8-95

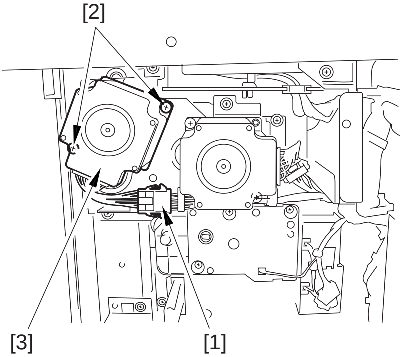
2) Remove the 7 screws [1], and lift the waste toner bottle base [2] to detach it in the direction of the arrow.



F-8-96

8.11.9.4 Removing Right Deck Pull-Off Motor

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the right deck pull-off motor [3].

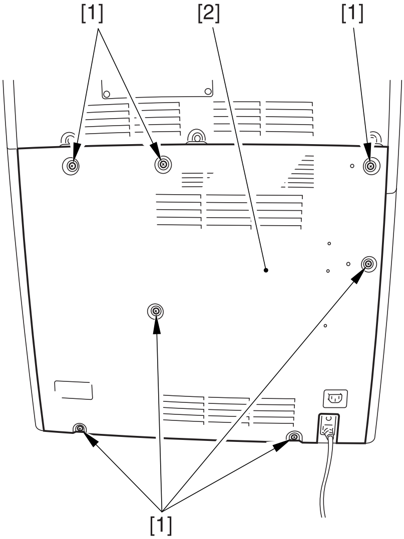


F-8-97

8.11.10 Cassette Paper Level Sensor (A/B)

8.11.10.1 Removing the Rear Cover (lower)

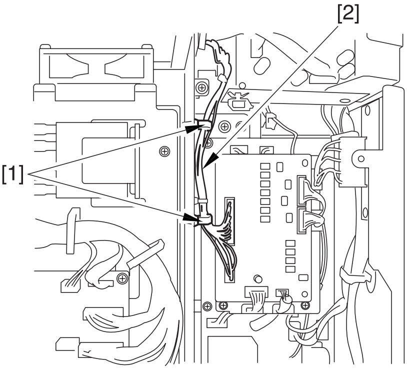
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-98

8.11.10.2 Removing the DC Power Supply Unit

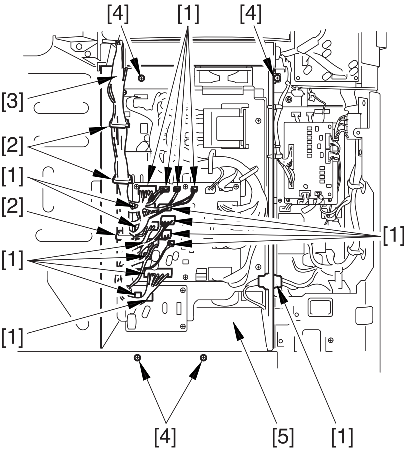
1) Open the 2 wire saddles [1], and free the harness [2].



F-8-99

2) Disconnect the 16 connectors [1], and open the 3 wire saddles [2] to free the harness [3].

3) Remove the 4 screws [4], and detach the DC power supply unit [5].

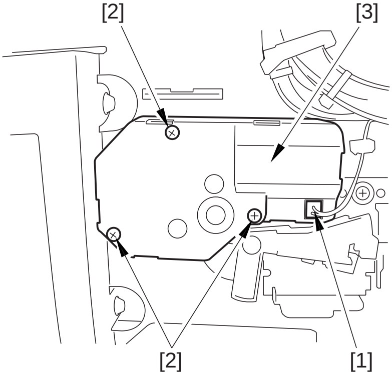


F-8-100

8.11.10.3 Removing the Cassette Lifter Motor

1) Slide out the cassette 3 or 4.

2) Disconnect the connector [1], and remove the 3 screws [3]; then, detach the cassette lifter motor [3].



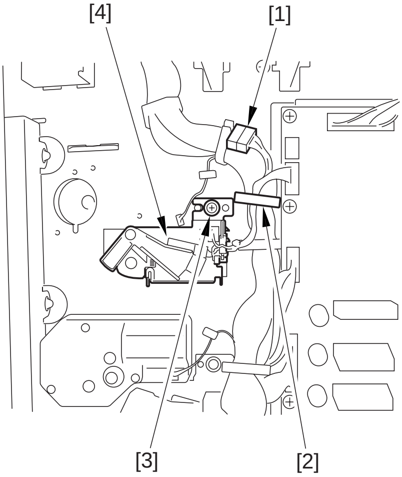
F-8-101

8.11.10.4 Removing the Cassette Paper Level Sensor

1) Slide out the cassette 3/4.

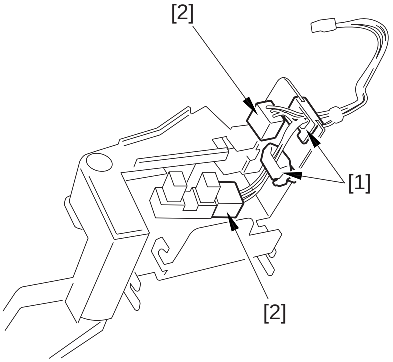
2) Disconnect the connector [1], and open the 2 wire saddles [2].

3) Remove the screw [3], and detach the sensor base [4].



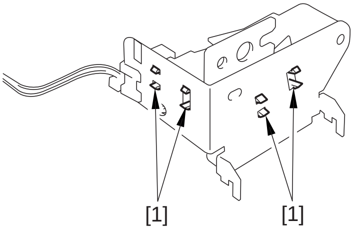
F-8-102

4) Free the harness from the wire saddle [1], and disconnect the connector [2].



F-8-103

5) Release the hook [1], and detach the cassette power level sensor [2].

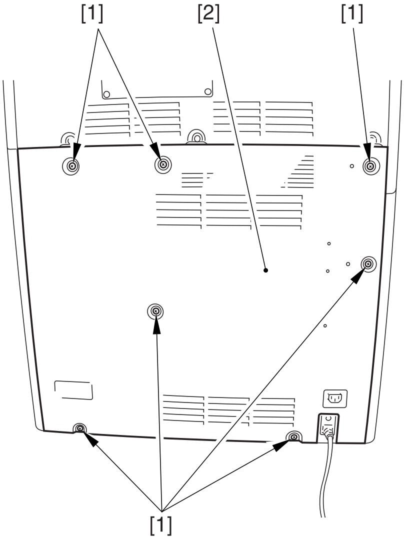


F-8-104

8.11.11 Left Deck Paper Level Sensor

8.11.11.1 Removing the Rear Cover (lower)

1) Remove the 7 screws [1], and detach the rear cover (lower) [2].

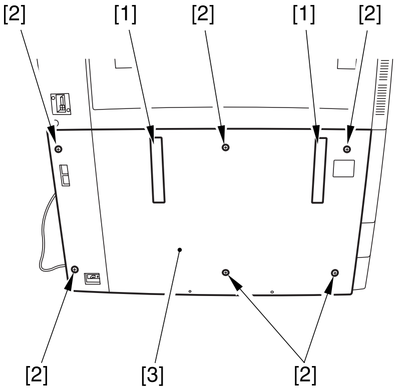


F-8-105

8.11.11.2 Removing the Left Cover (lower)

1) Remove the 2 grip covers [1].

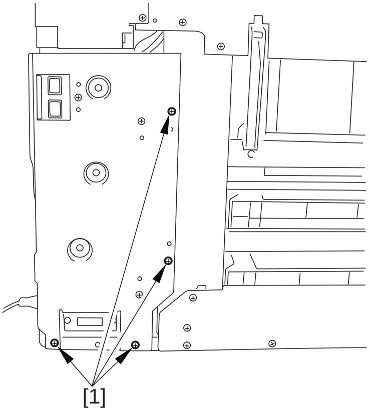
2) Remove the 6 screws [2], and detach the left cover (lower) [3].



F-8-106

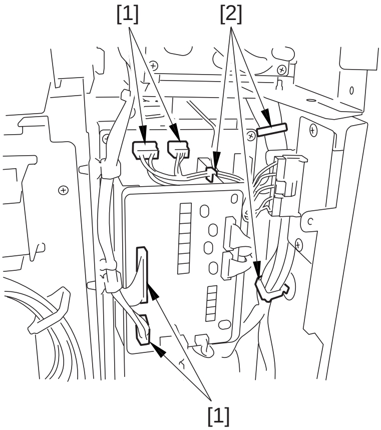
8.11.11.3 Removing the Power Cord Base

1) Remove the 4 screws [1] from the left side.



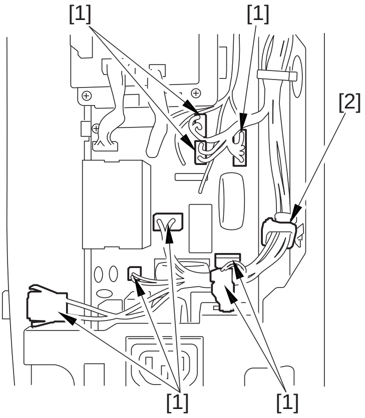
F-8-107

2) Disconnect the 4 connectors [1], and open the 3 wire saddles [2].



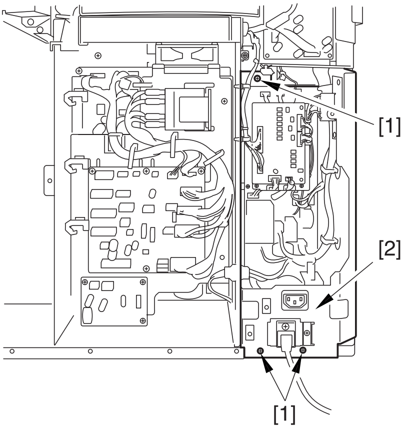
F-8-108

3) Disconnect the 8 connectors [1], and open the wire saddle [2].



F-8-109

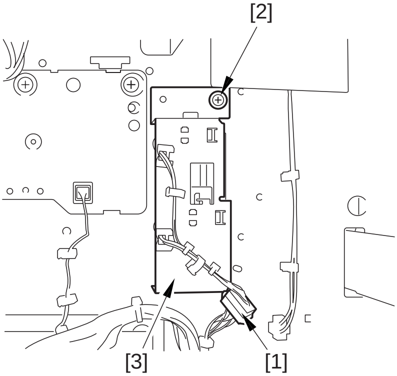
4) Remove the 3 screws [1], and detach the AC driver box [2].



F-8-110

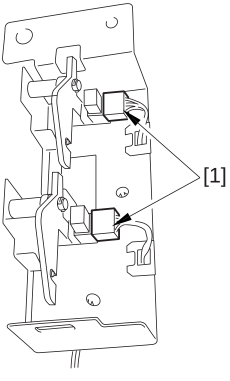
8.11.11.4 Removing the Left Deck Paper Level Sensor

1) Disconnect the connector [1], and remove the screw [2]; then, detach the sensor base [3].



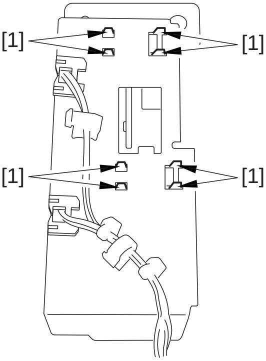
F-8-111

2) Disconnect the connector [1].



F-8-112

3) Release the hook [1], and detach the left deck paper level sensor.



F-8-113

8.11.12 Right Deck Pickup Assembly

8.11.12.1 Removing the Right Deck Pickup Unit

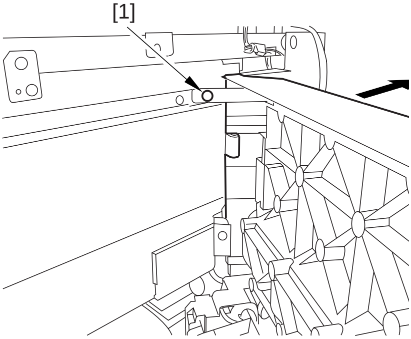
1) Slide out the right deck.

2) Remove the upper rear right cover.

3) Open the lower right cover.

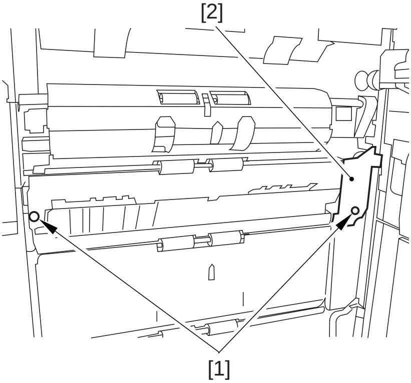
4) Open the manual feed unit.

5) Remove the screw [1], and open the manual feed unit wide



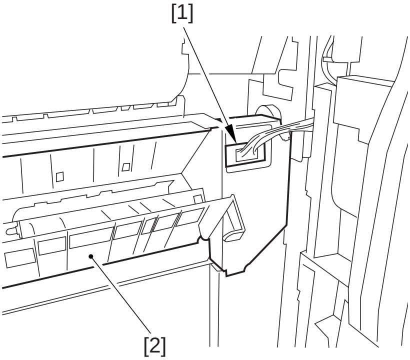
F-8-114

6) Remove the 2 screws [1], and detach the connector cover [2].



F-8-115

7) Disconnect the connector [1], and detach the pickup unit (right deck) [1].



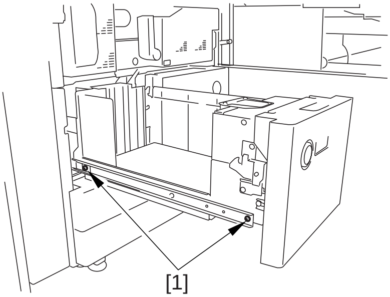
F-8-116

8.11.13 Left Deck Pickup Assembly

8.11.13.1 Removing the Left Deck Pickup Unit

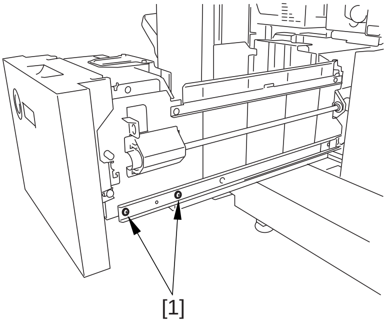
1) Open the front door.

2) Slide out the left deck, and remove the 2 screws [1] from the left side of the compartment.



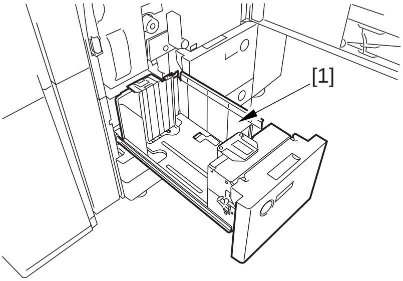
F-8-117

3) Remove the 2 screws [1] from the right side of the deck compartment



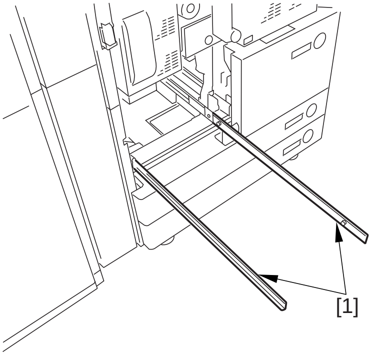
F-8-118

4) Lift the left deck compartment [1] to detach.



F-8-119

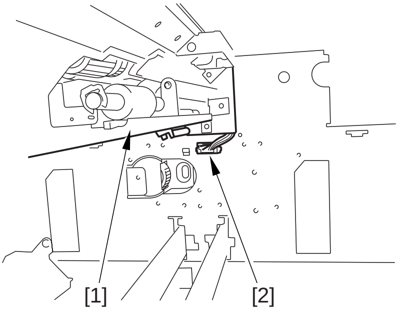
5) Put back the 2 rails [1] into the machine.



F-8-120

6) In the same way, detach the right deck compartment.

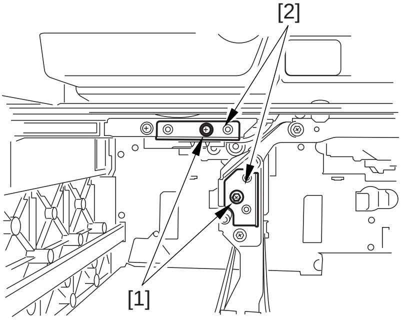
7) Disconnect the connector [2] found at the rear of the left deck pickup assembly [1].



F-8-121

8) Slide out the fixing/freeing assembly.

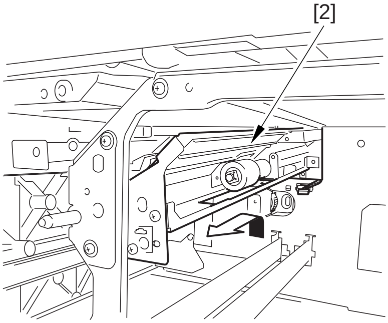
9) Remove the 2 screws [1], and detach the pickup fixing plate [2]



F-8-122

⚠ When detaching the fixing plate, be sure to support the pickup assembly with you hand. (The pickup assembly may fall.)

10) While supporting the bottom of the left deck pickup assembly, slide out the pickup assembly [1] to detach.



F-8-123

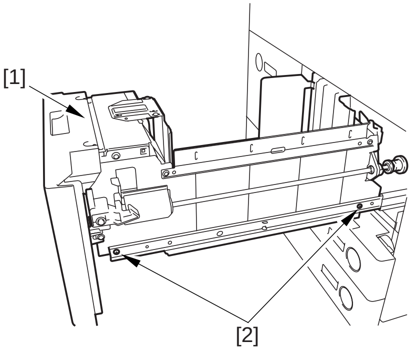
8.11.14 Right Deck Pickup/Feed/Separation Roller

8.11.14.1 Removing the Right Deck Pickup,

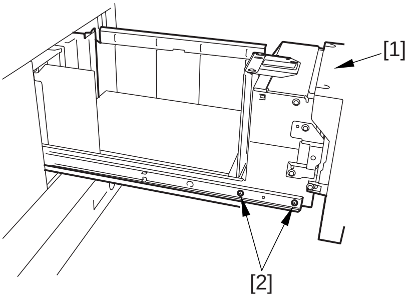
Feed, and Separation Rollers

1) Slide out the right deck.

2) From both sides of the deck compartment [1], remove the 2 screws each [2]; then, detach the deck compartment.

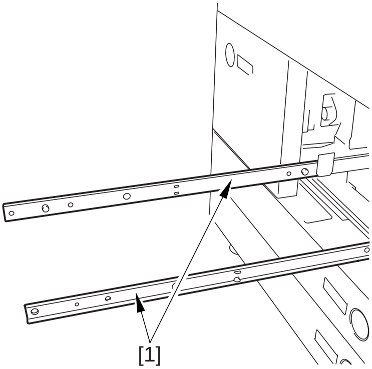


F-8-124



F-8-125

3) Push the 2 rails [1] into the machine.

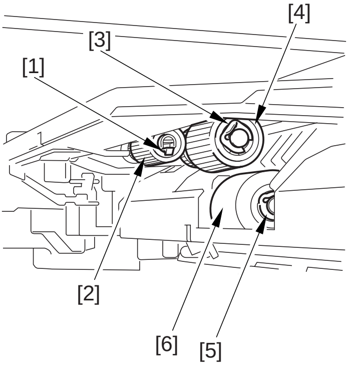


F-8-126

4) Free the hook [1], and pull out the pickup roller [2].

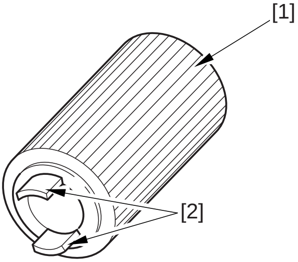
5) Remove the resin ring [3], and pull out the feed roller [4].

6) Remove the resin ring [5], and pull out the separation roller [6].



F-8-127

⚠ When mounting the pickup roller [1], be sure the protrusion [2] indicated in the diagram faces the rear.



F-8-128

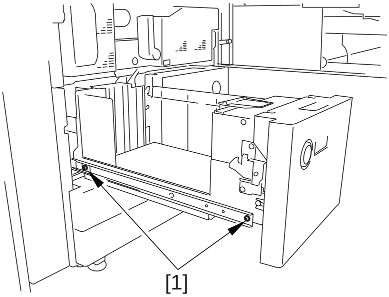
8.11.15 Left Deck Pickup/ Feed/Separation Roller

8.11.15.1 Removing the Left Deck Pickup, Feed, and Separation Roller

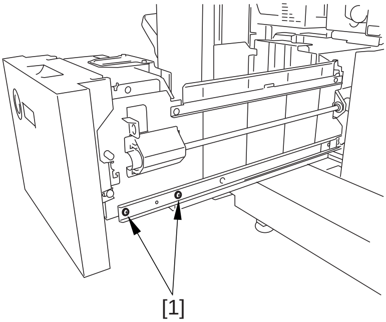
1) Slide out the right deck.

2) Slide out the left deck.

3) From both sides of the left deck compartment [1], remove the 2 screws each [2]; then, detach the left deck compartment.

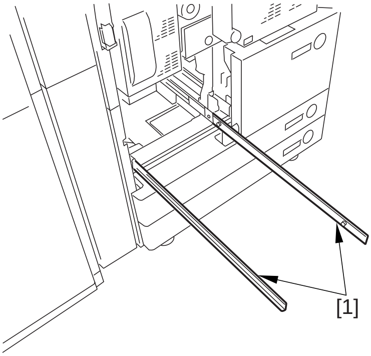


F-8-129



F-8-130

4) Push the 2 rails [1] into the machine.

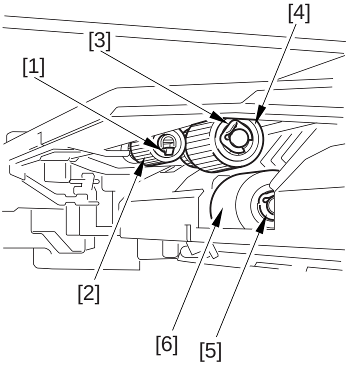


F-8-131

5) Free the hook [1], and pull out the pickup roller [2].

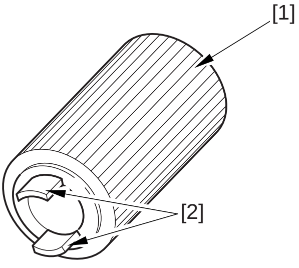
6) Remove the resin ring [3], and pull out the feed roller [4].

7) Remove the resin ring [5], and pull out the separation roller [6].



F-8-132

⚠ When mounting the pickup roller [1], be sure that the protrusion [2] indicated in the diagram faces the rear.



F-8-133

8.11.16 Cassette Pickup/Feed/Separation Roller

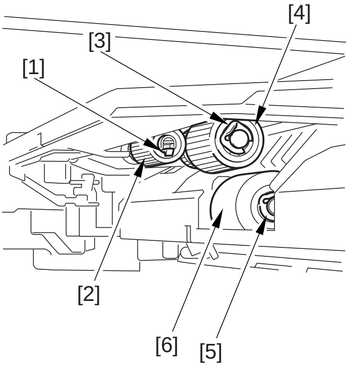
8.11.16.1 Removing the Cassette Pickup, Feed, and Separation Rollers

1) Slide out the cassette 3/4.

2) Free the hook [1], and pull out the pickup roller [2].

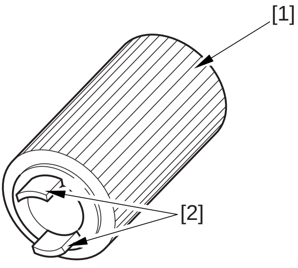
3) Remove the resin ring [3], and pull out the feed roller [4].

4) Remove the resin ring [5], and pull out the separation roller [67].



F-8-134

⚠ When mounting the pickup roller [1], be sure that the protrusion [2] indicated in the diagram faces the rear.



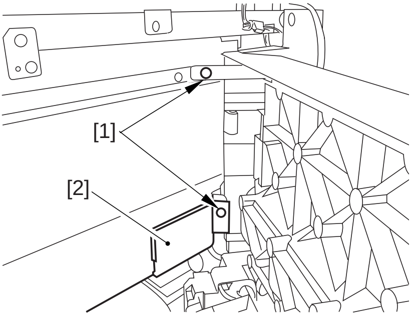
F-8-135

8.11.17 Manual Feed Unit

8.11.17.1 Removing the Manual Feed Unit

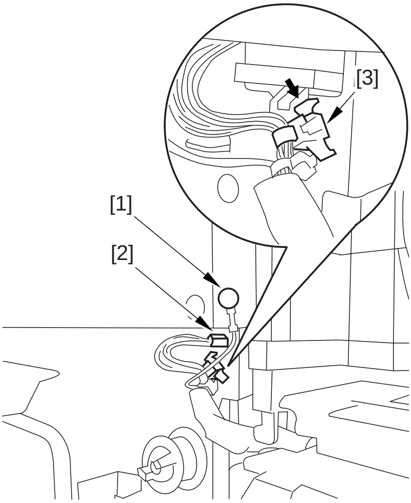
1) Open the manual feed unit.

2) Remove the 2 screws [1], and detach the cover [2].



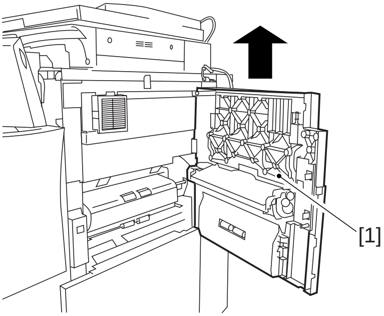
F-8-136

Remove the screw [1] used to hold the grounding wire in place, disconnect the connector [2], and detach the harness retainer [3].



F-8-137

4) Lift the manual feed unit [1] to detach.



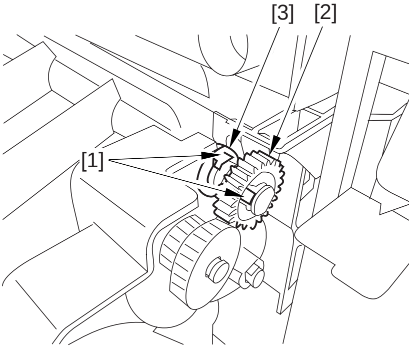
F-8-138

8.11.18 Manual Feed Roller

8.11.18.1 Removing the Manual Feed Roller

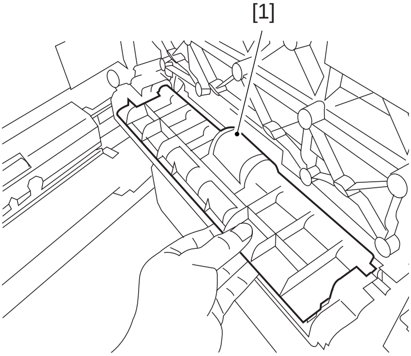
1) Open the manual feed unit.

2) Release the claw [1], and detach the gear [2] and the bushing [3].



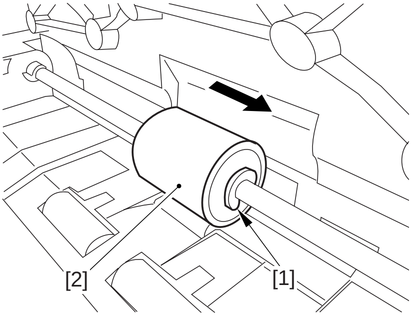
F-8-139

3) Remove the feeder upper cover [1].



F-8-140

4) Remove the resin ring [1], and pull out the feed roller [2] to the front.



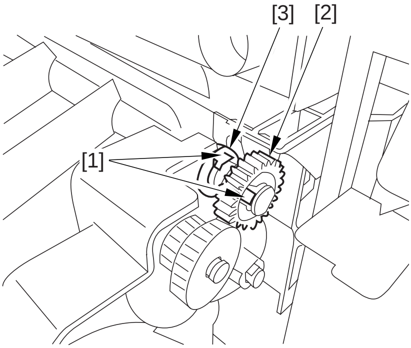
F-8-141

8.11.19 Manual Feed Separation Roller

8.11.19.1 Removing the Manual Feed Roller

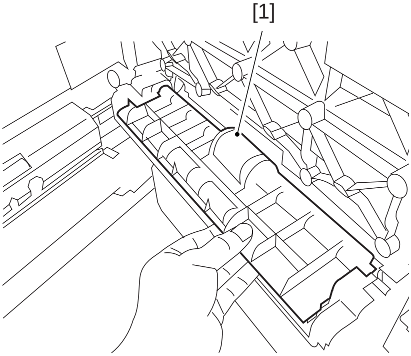
1) Open the manual feed unit.

2) Release the claw [1], and detach the gear [2] and the bushing [3].



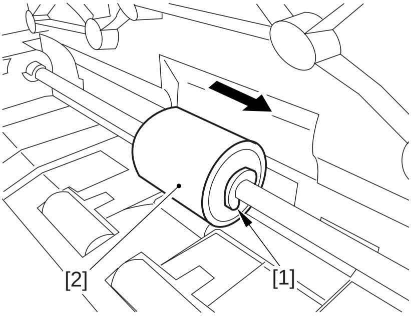
F-8-142

3) Remove the feeder upper cover [1].



F-8-143

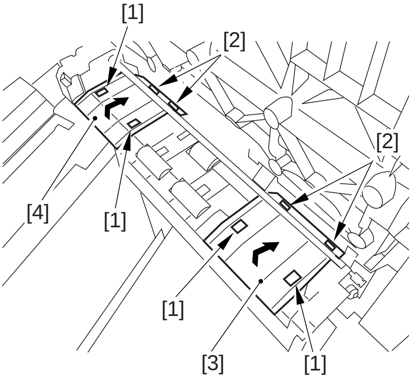
4) Remove the resin ring [1], and pull out the feed roller [2] to the front.



F-8-144

8.11.19.2 Removing the Manual Feed Separation Roller

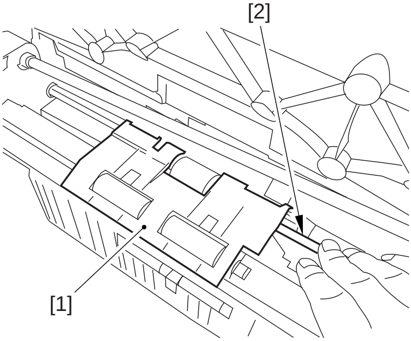
1) Lift the paper guide to free the hook [1]; then, slide it to free the claw [2], thereby detaching the paper guide (front) [3] and the other paper guide (rear) [4].



F-8-145

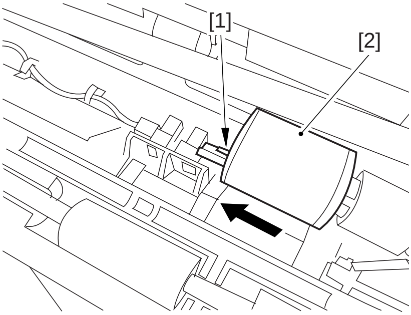
2) As in step 1), detach the paper guide (middle) [1].

Reference: When attaching the paper guide (middle), try pushing down on the separation roller shaft [2] to facilitate the work.



F-8-146

3) Pick its tab [1], and pull out the separation roller [2] toward the rear.



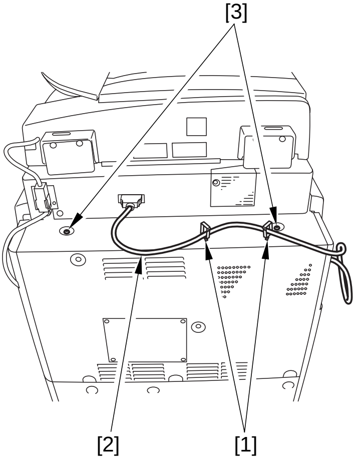
F-8-147

8.11.20 Manual Feed Pre-Regustration Motor

8.11.20.1 Removing the Rear Cover (upper)

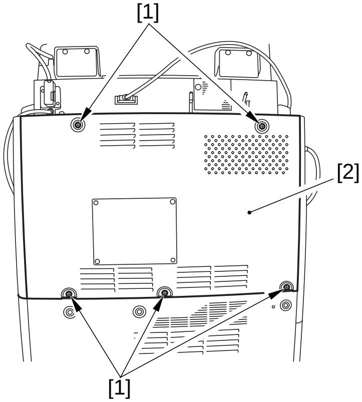
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-8-148

3) Remove the 5 screws [1], and detach the rear cover (upper) [2].

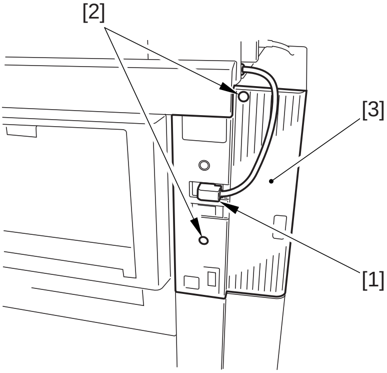


F-8-149

8.11.20.2 Removing the Right Cover (upper rear)

1) Detach the reader communications cable [1].

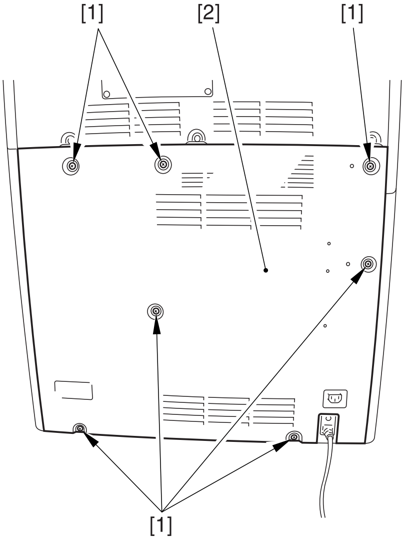
2) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



F-8-150

8.11.20.3 Removing the Rear Cover (lower)

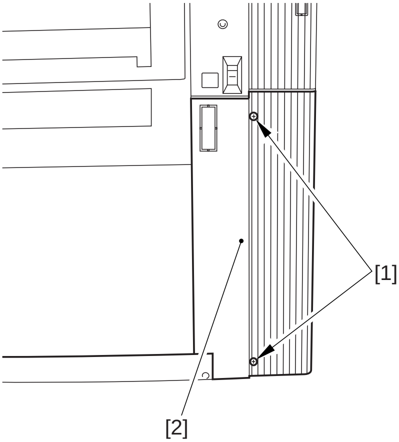
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-8-151

8.11.20.4 Removing the Right Cover (lower rear)

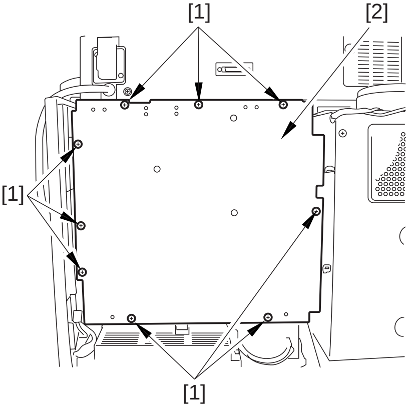
1) Remove the 2 screws [1],and detach the right cover (lower rear) [2].



F-8-152

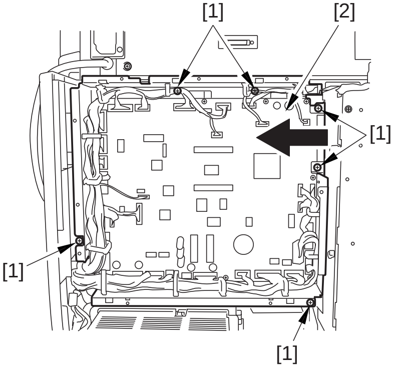
8.11.20.5 Sliding the DC Controller Box

1) Remove the 9 screws [1], and detach the DC controller cover [2].



F-8-153

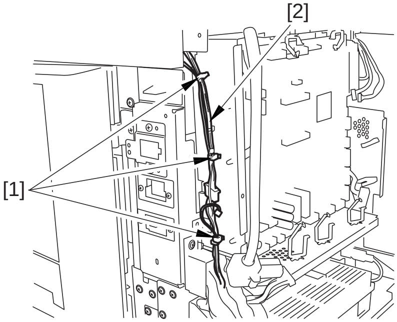
2) Remove the 6 screws [1], and slide the DC controller box [2] to the left.



F-8-154

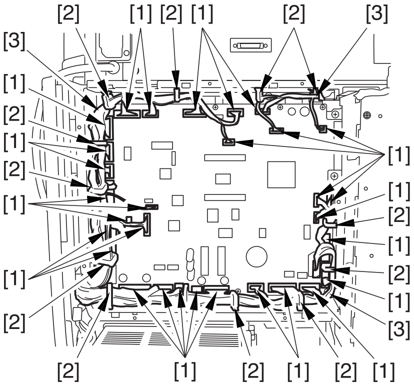
8.11.20.6 Removing the DC Controller Box

1) Open the 3 cable guides [1], and free the harness [2].



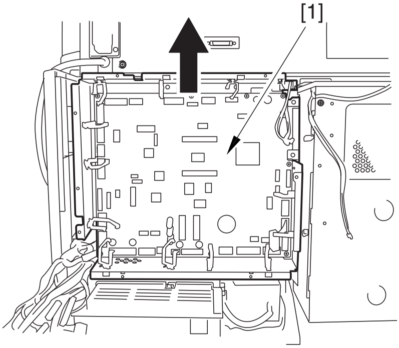
F-8-155

2) Disconnect the 33 connectors [1], and open that 13 cable guides [2]; then, free the harness [3].



F-8-156

3) Lift the DC controller box [1] to detach.



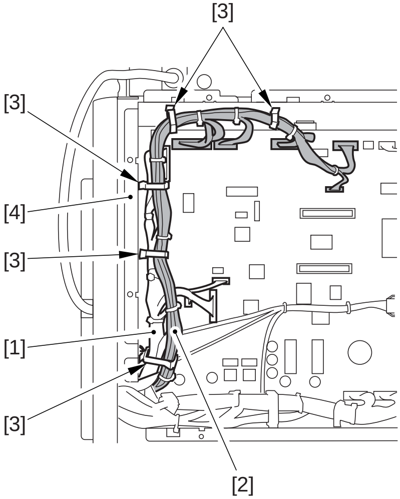
F-8-157

8.11.20.7 Points to Note When Mounting the DC Controller Box

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].

- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].

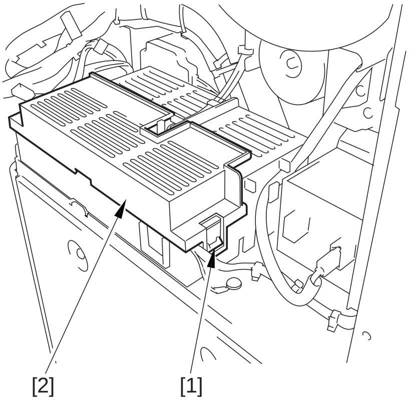


F-8-158

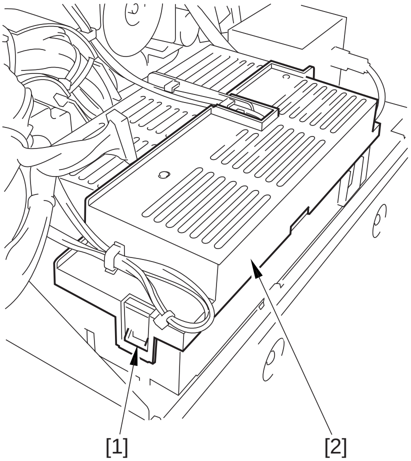
Supplementary Information:
If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

8.11.20.8 Removing the HV1 PCB

1) Free the 2 hooks [1], and detach the HV1 transformer lid [2].

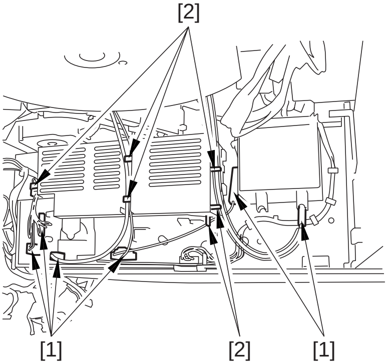


F-8-159



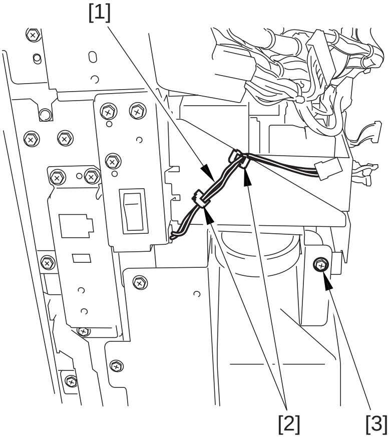
F-8-160

2) Disconnect the 6 connectors [1], and free the harness from the 6 cable guides [2].



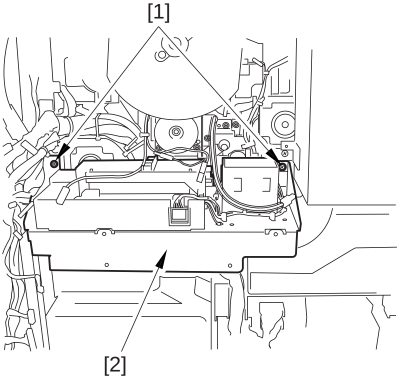
F-8-161

3) Free the harness [1] from the 2 cable guides [2]; then, remove the screw.



F-8-162

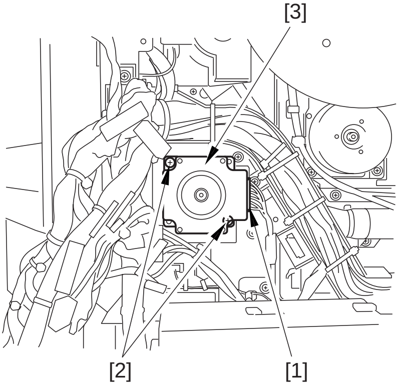
4) Remove the 2 screws [1], and lift the HV1 PCB [2] to detach.



F-8-163

8.11.20.9 Manual Feed Pre-Registration Motor

1) Disconnect the connector [1], and remove the 2 screws [2]; then, move the manual feed pre-registration motor [3] to the right to detach



F-8-164

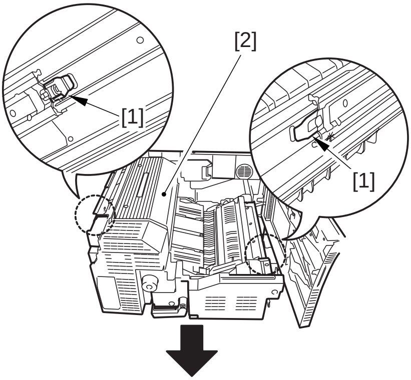
8.11.21 Horizontal Registration Assembly

8.11.21.1 Removing the Fixing Assembly

1) Open the front cover.

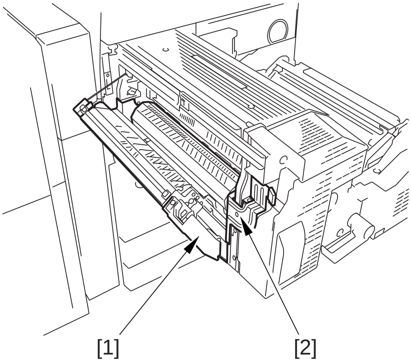
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



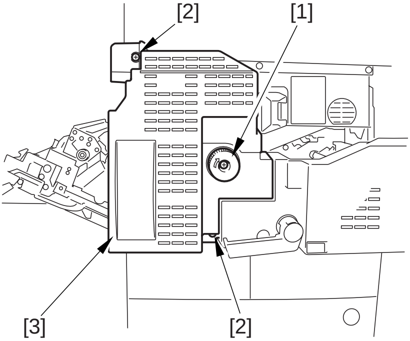
F-8-165

4) Open the reversal delivery cover [1] and the middle cover [2].



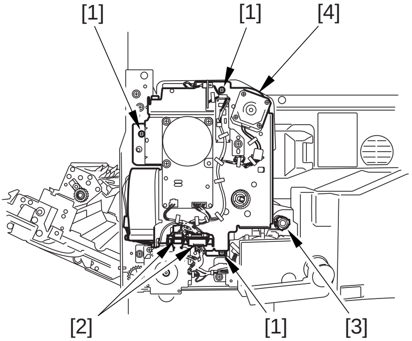
F-8-166

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



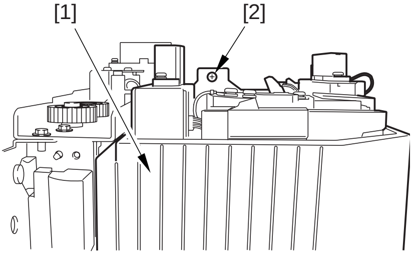
F-8-167

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



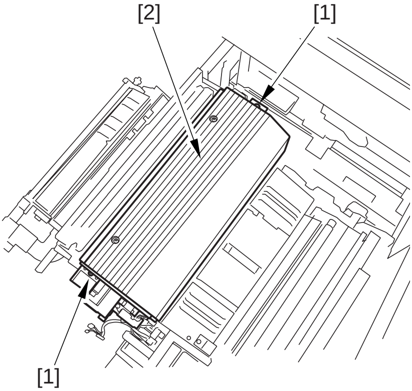
F-8-168

7) Remove the screw [2] found at the rear of the fixing assembly [1].



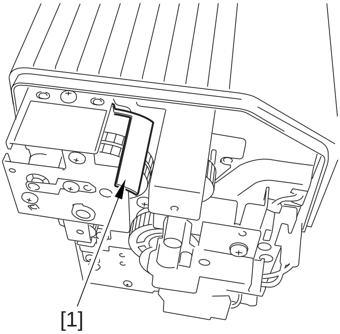
F-8-169

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-8-170

⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.

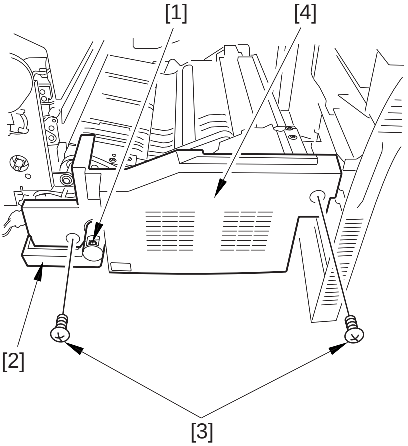


F-8-171

8.11.21.2 Removing the Horizontal Registration Unit

1) Remove the screw [1], and detach the handle [2].

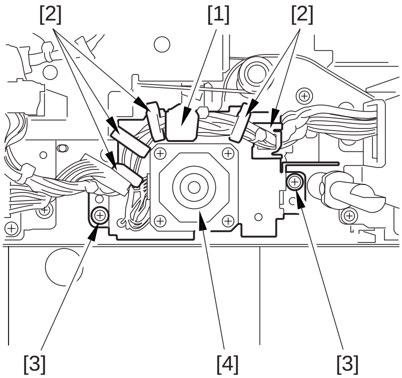
2) Remove the 2 screws [3], and detach the fixing/feeding front cover [4].



F-8-172

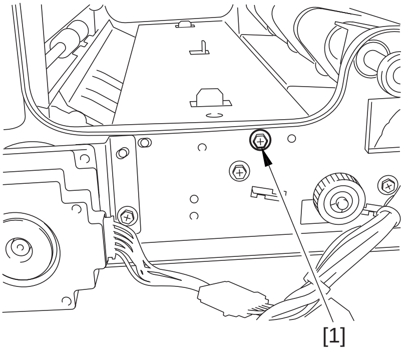
3) Disconnect the connector [1], and open the 3 wire saddles [2].

4) Remove the 2 screws [3], and detach the duplexing left motor [4] together with its base.



F-8-173

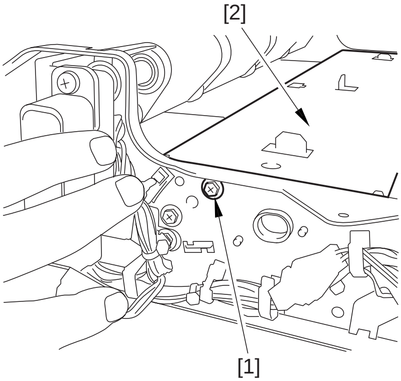
5) Remove the screw [1] from the front side.



F-8-174

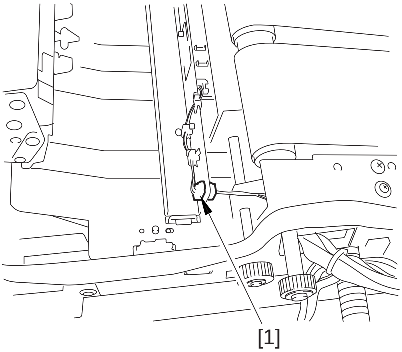
6) Remove the screw [1] from the rear.

7) Detach the side plate [2].



F-8-175

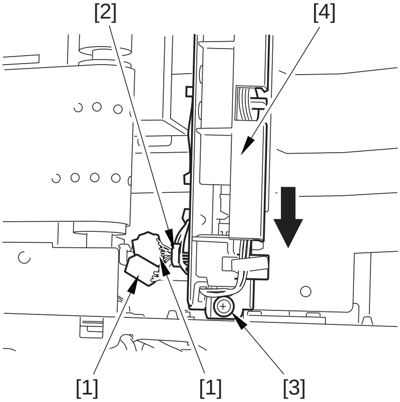
8) Disconnect the connector [1].



F-8-176

9) Disconnect the 2 connectors [1], and open the wire guide [2].

10) Remove the screw [3], and slide the horizontal registration unit [4] in the direction of the arrow to detach.



F-8-177

8.11.22 Registration Motor

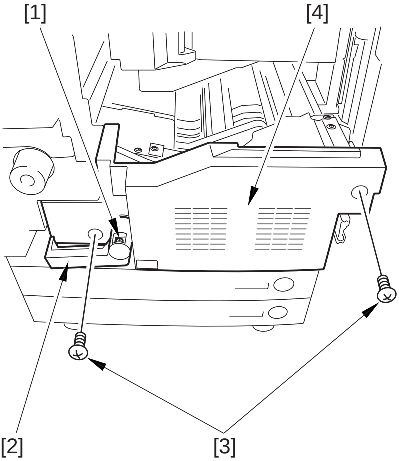
8.11.22.1 Removing the Fixing/Feeding Driver PCB

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

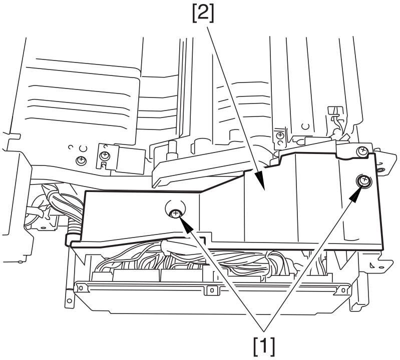
3) Remove the screw [1], and detach the handle [2].

4) Remove the 2 screws [3], and detach the fixing/feeding front cover [4].



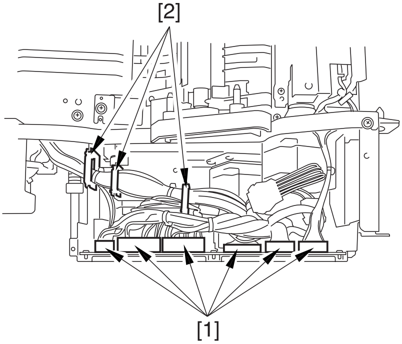
F-8-178

5) Remove the 2 screws [1], and detach the fixing/feeding upper cover [2].



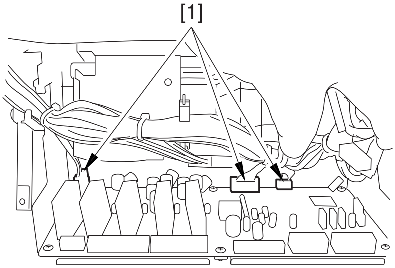
F-8-179

6) Disconnect the 6 connectors [1], and open the 3 wire saddles [2].



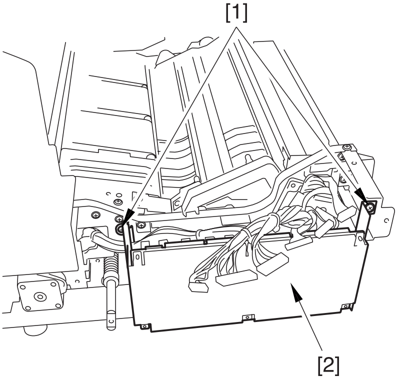
F-8-180

7) Disconnect the 3 connectors [1].



F-8-181

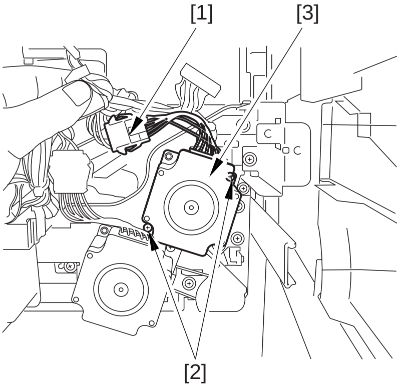
8) Remove the 2 screws [1], and shift the fixing/feeding driver PCB [2] toward the front to detach.



F-8-182

8.11.22.2 Removing the Registration Motor

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the registration motor [3].



F-8-183

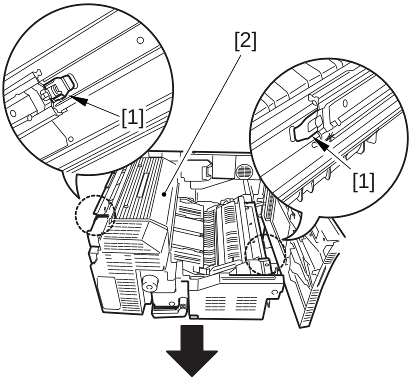
8.11.23 Horizontal Registration Motor

8.11.23.1 Removing the Fixing Assembly

1) Open the front cover.

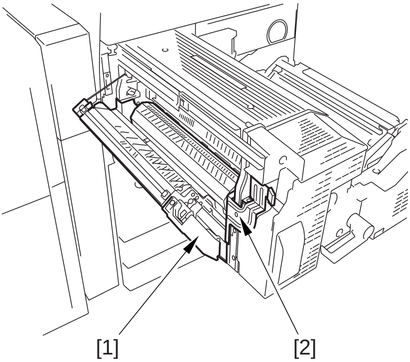
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



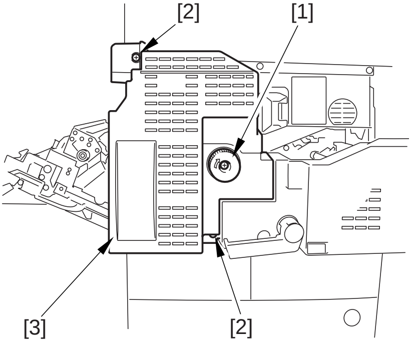
F-8-184

4) Open the reversal delivery cover [1] and the middle cover [2].



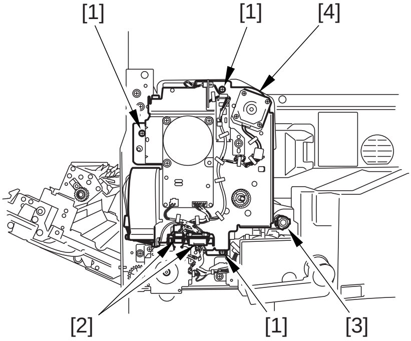
F-8-185

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



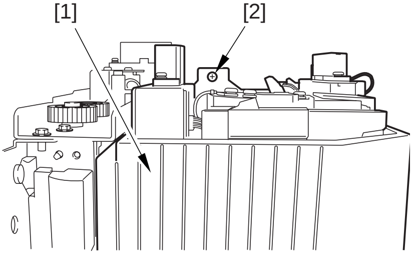
F-8-186

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



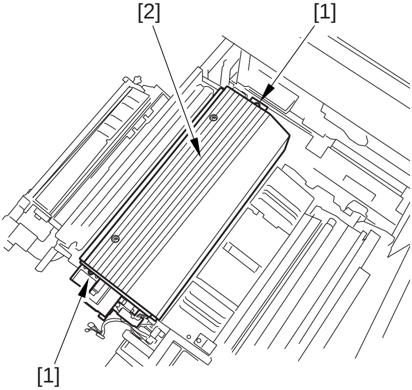
F-8-187

7) Remove the screw [2] found at the rear of the fixing assembly [1].



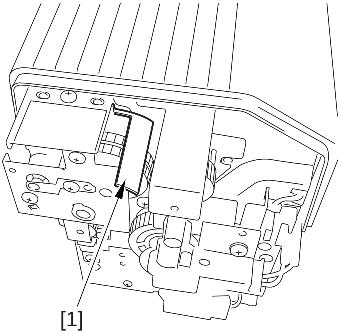
F-8-188

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-8-189

⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.

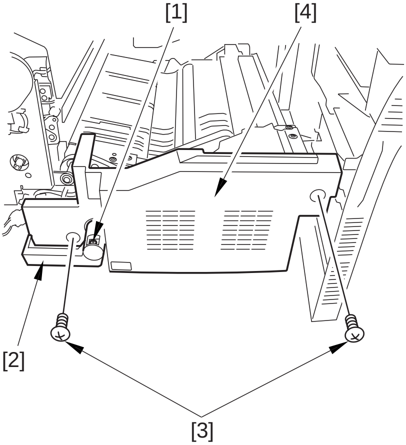


F-8-190

8.11.23.2 Removing the Horizontal Registration Unit

1) Remove the screw [1], and detach the handle [2].

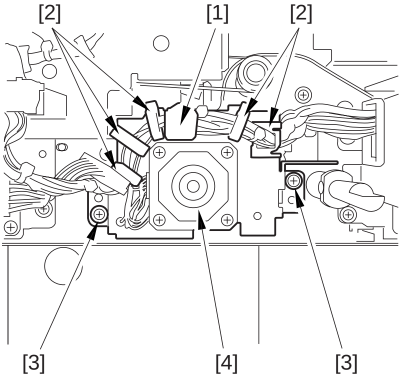
2) Remove the 2 screws [3], and detach the fixing/feeding front cover [4].



F-8-191

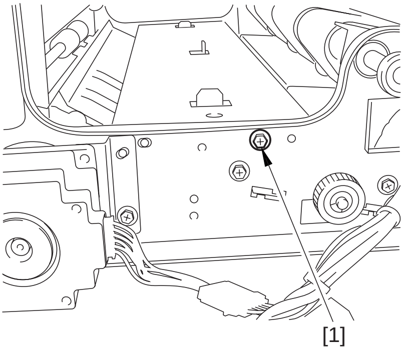
3) Disconnect the connector [1], and open the 3 wire saddles [2].

4) Remove the 2 screws [3], and detach the duplexing left motor [4] together with its base.



F-8-192

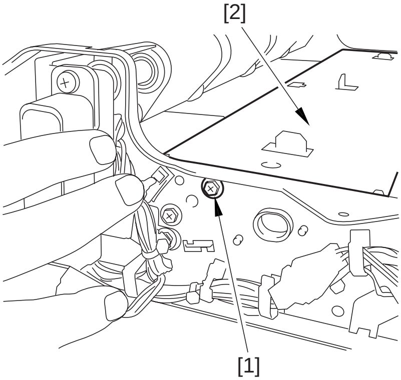
5) Remove the screw [1] from the front side.



F-8-193

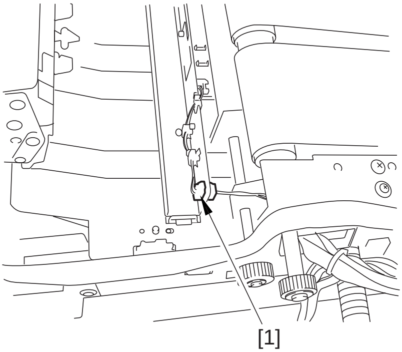
6) Remove the screw [1] from the rear.

7) Detach the side plate [2].



F-8-194

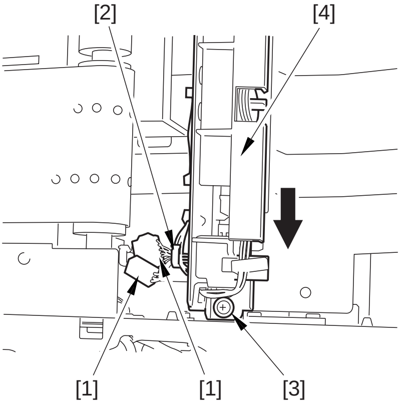
8) Disconnect the connector [1].



F-8-195

9) Disconnect the 2 connectors [1], and open the wire guide [2].

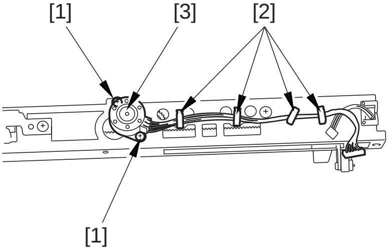
10) Remove the screw [3], and slide the horizontal registration unit [4] in the direction of the arrow to detach.



F-8-196

8.11.23.3 Removing the Horizontal Registration Motor

1) Remove the 2 screws [1], and open the 2 wire guides [2] to detach the horizontal registration motor [3].



F-8-197

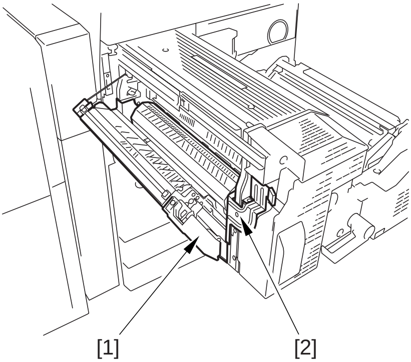
8.11.24 Duplex Reversal Motor

8.11.24.1 Removing the Fixing Front Cover

1) Open the font cover.

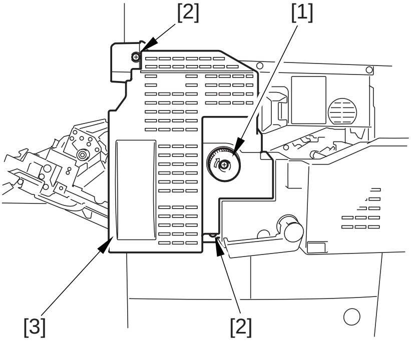
2) Slide out the fixing/feeding assembly.

3) Open the re reversal delivery cover [1] and the middle cover [2].



F-8-198

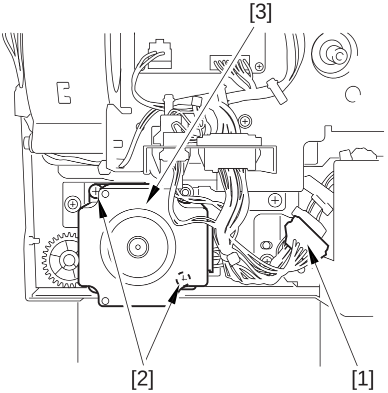
5) Remove the knob [1] and the 2 screws [2]; then, detach the fixing front cover [3].



F-8-199

8.11.24.2 Removing the Duplexing Reversal Motor

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the duplexing reversal motor [3].



F-8-200

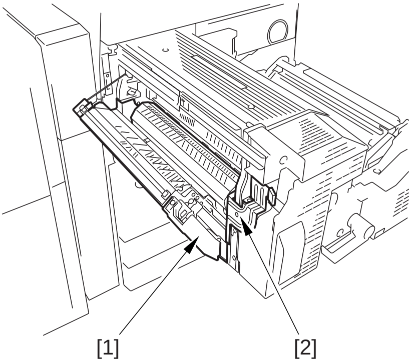
8.11.25 Duplex Left Motor

8.11.25.1 Removing the Fixing Front Cover

1) Open the font cover.

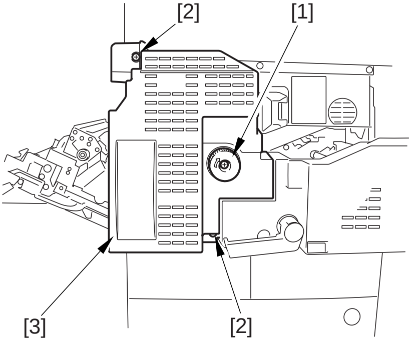
2) Slide out the fixing/feeding assembly.

3) Open the re reversal delivery cover [1] and the middle cover [2].



F-8-201

5) Remove the knob [1] and the 2 screws [2]; then, detach the fixing front cover [3].

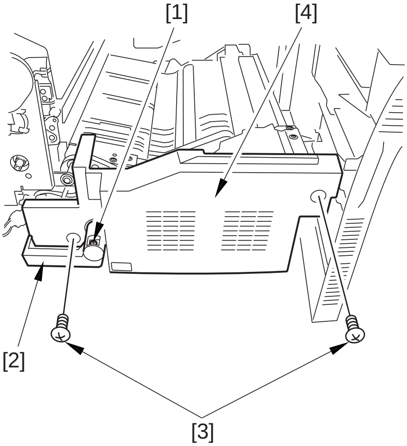


F-8-202

8.11.25.2 Removing the Duplexing Left Motor

1) Remove the screw [1], and detach the handle [2].

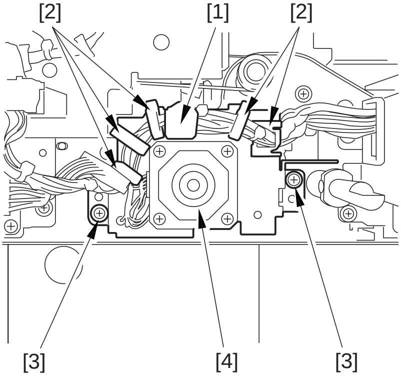
2) Remove the 2 screws [3], and detach the fixing/feeding front cover [4].



F-8-203

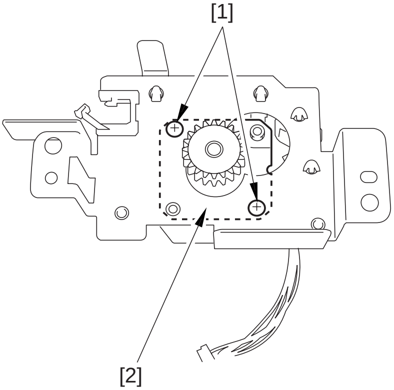
3) Disconnect the connector [1], and open the 3 wire saddles [2].

4) Remove the 2 screws [3], and detach the duplexing left motor [4] together with its base.



F-8-204

5) Remove the 2 screws [1], and detach the duplexing left motor [2].



F-8-205

8.11.26 Duplex Middle Motor

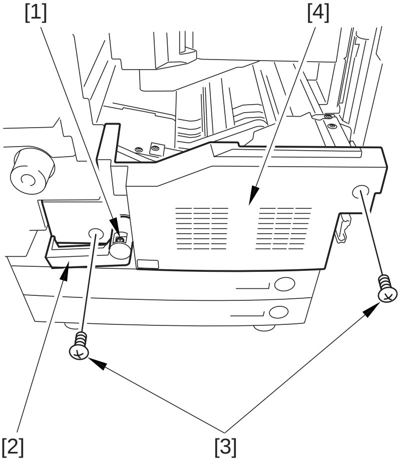
8.11.26.1 Removing the Fixing/Feeding Driver PCB

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

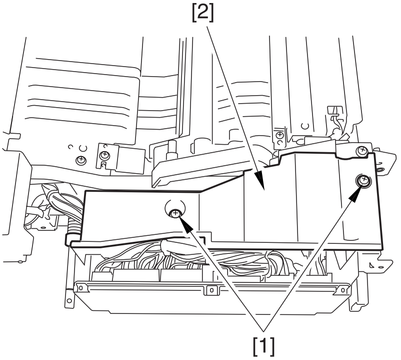
3) Remove the screw [1], and detach the handle [2].

4) Remove the 2 screws [3], and detach the fixing/feeding front cover [4].



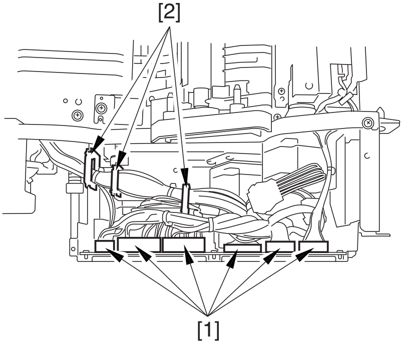
F-8-206

5) Remove the 2 screws [1], and detach the fixing/feeding upper cover [2].



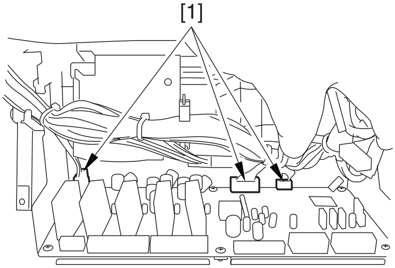
F-8-207

6) Disconnect the 6 connectors [1], and open the 3 wire saddles [2].



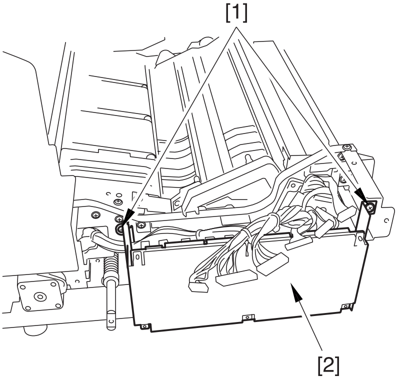
F-8-208

7) Disconnect the 3 connectors [1].



F-8-209

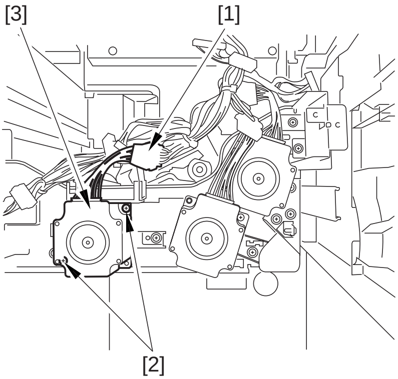
8) Remove the 2 screws [1], and shift the fixing/feeding driver PCB [2] toward the front to detach.



F-8-210

8.11.26.2 Removing the Duplexing Middle Motor

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the duplexing middle motor [3].



F-8-211

8.11.27 Duplex Right Motor

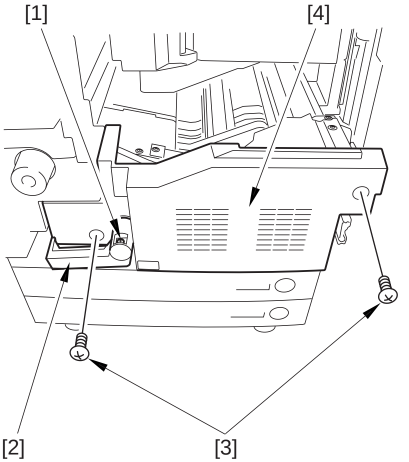
8.11.27.1 Removing the Fixing/Feeding Driver PCB

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

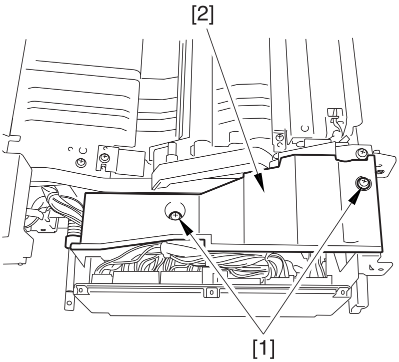
3) Remove the screw [1], and detach the handle [2].

4) Remove the 2 screws [3], and detach the fixing/feeding front cover [4].



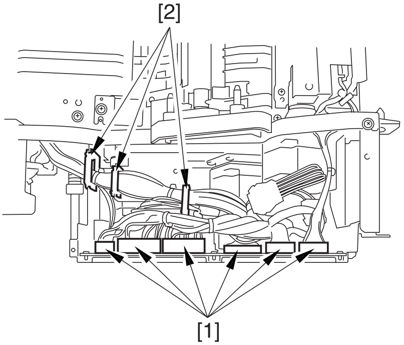
F-8-212

5) Remove the 2 screws [1], and detach the fixing/feeding upper cover [2].



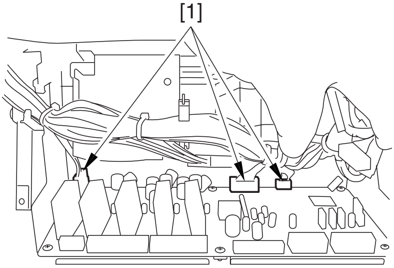
F-8-213

6) Disconnect the 6 connectors [1], and open the 3 wire saddles [2].



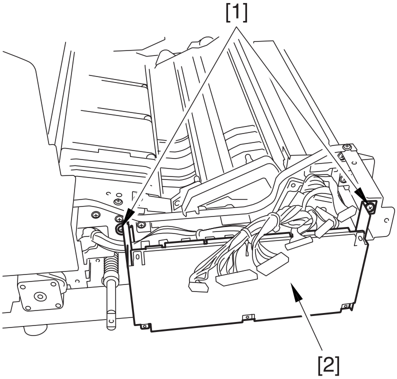
F-8-214

7) Disconnect the 3 connectors [1].



F-8-215

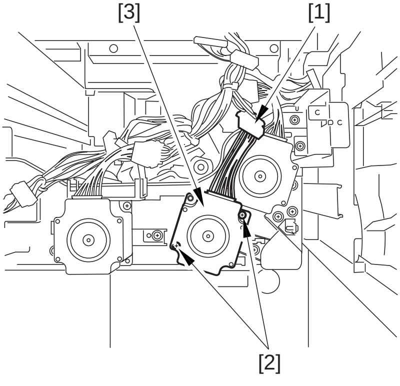
8) Remove the 2 screws [1], and shift the fixing/feeding driver PCB [2] toward the front to detach.



F-8-216

8.11.27.2 Removing the Duplexing Right Motor

1) Disconnect the connector [1], and remove the 2 screws; then, detach the duplexing right motor [3].

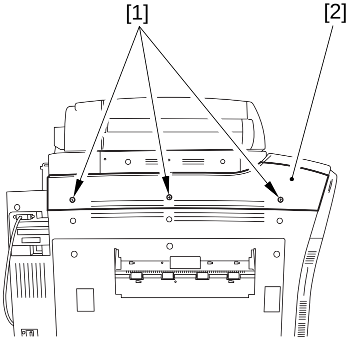


F-8-217

8.11.28 Outside Delivery Motor

8.11.28.1 Removing the Left Cover (upper)

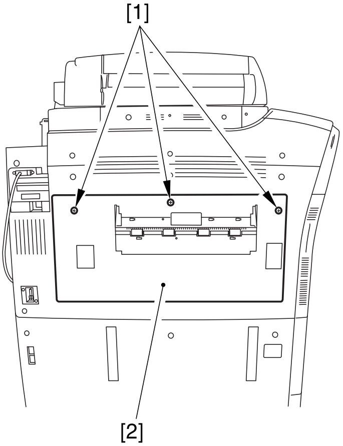
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-8-218

8.11.28.2 Removing the Delivery Cover

1) Remove the 3 screws [1], and detach the delivery cover [2].

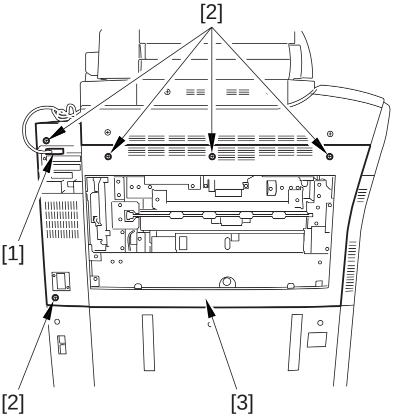


F-8-219

8.11.28.3 Removing the Left Cover (middle)

1) Disconnect the connector [1].

2) Remove the 5 screws [2], and detach the left cover (middle) [3].

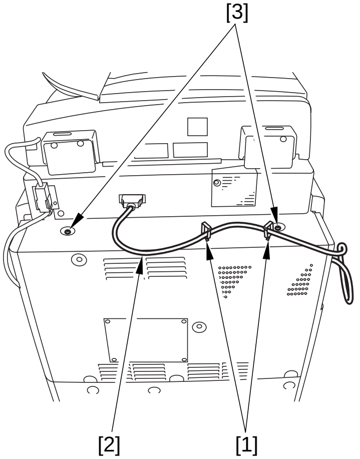


F-8-220

8.11.28.4 Removing the Rear Cover (upper)

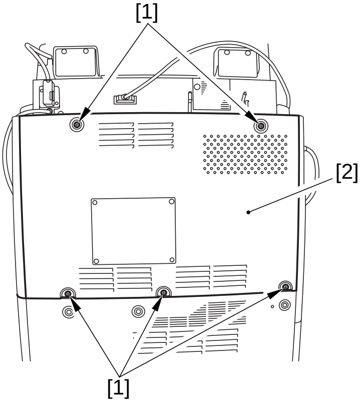
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-8-221

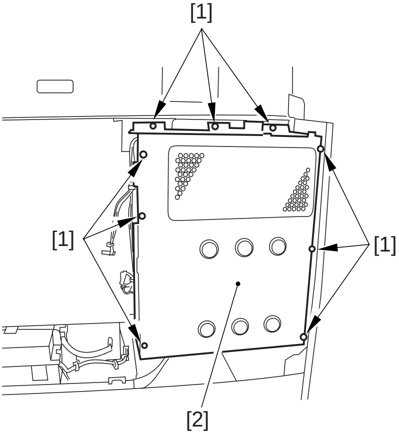
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



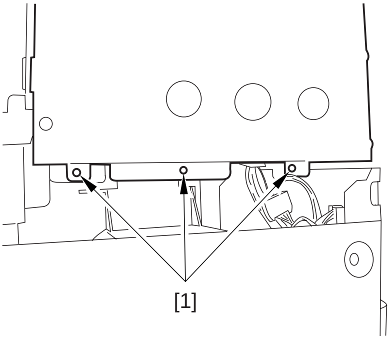
F-8-222

8.11.28.5 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



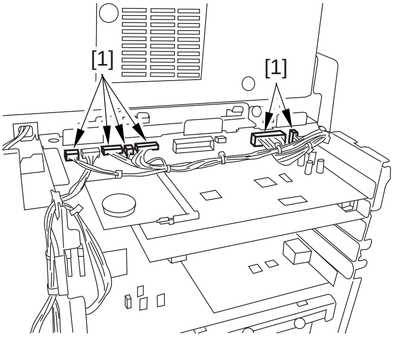
F-8-223



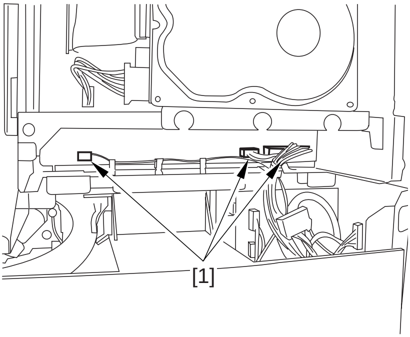
F-8-224

8.11.28.6 Removing the Controller Box

1) Disconnect the 9 connectors [1].

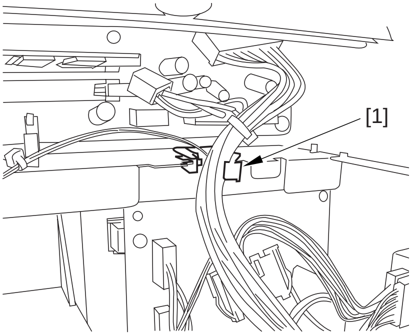


F-8-225

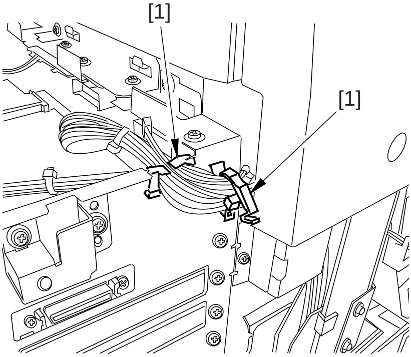


F-8-226

2) Free the harness from the 3 harness retainers [1].

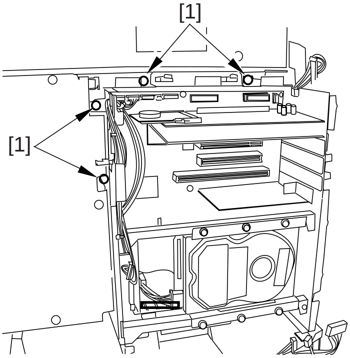


F-8-227

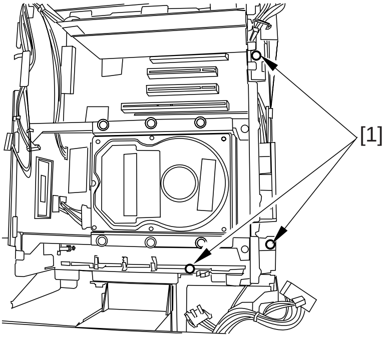


F-8-228

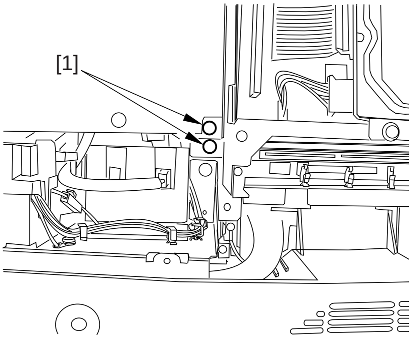
3) Remove the 9 screws [1] used to fix the main controller box in place.



F-8-229

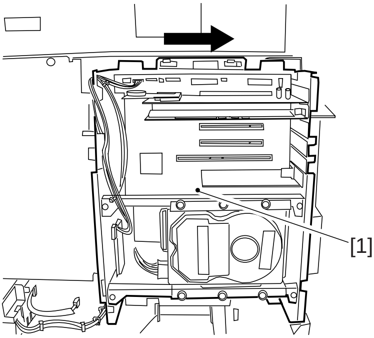


F-8-230



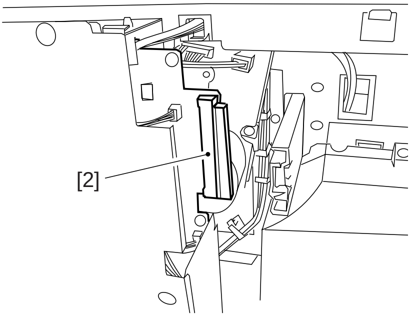
F-8-231

4) Slide the main controller box [1] toward the delivery side to detach.



F-8-232

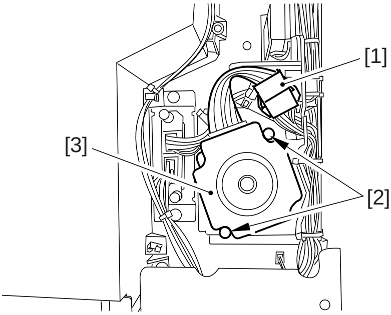
⚠ During removal/mounting, be sure to take care not to damage the connector [2] found at the joint to the DC controller PCB.



F-8-233

8.11.28.7 Removing the Outside Delivery Motor

1) Disconnect the connector [1], and remove the 2 screws; then, detach the outside delivery motor [3].



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Chapter 9

Fixing System

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9.1 Construction

9.1.1 Specifications, Control Mechanisms, and Functions

The following shows the major functions of the fixing system:

T-9-1

Item	Description	
Method of fixing	by heating roller	
Fixing heater	on fixing roller side	2 pc. (main heater, sub heater)
	on pressure roller side	1 pc.
	on outside heating roller side	1 pc.
Control temperature	fixing roller	200 deg C (in standby)
	pressure roller	170 deg C (in standby)
	outside heating roller	225 deg C (in standby)
Fixing temperature detection	fixing roller	main thermistor THM1 (contact type; middle) sub thermistor THM4 (contact type; rear edge)
	pressure roller	main thermistor THM2 (contact type; middle) sub thermistor THM5 (contact type; rear edge)
	outside heating roller	main thermistor THM3 (contact type) sub thermistor THM6 (contact type; front edge)
Protective mechanism	The following mechanisms are used, and the power to the fixing heater is cut upon detection of a fault:	
	- monitoring of temperature by main/sub thermistor	
	- operation of thermal switch	
	fixing roller:	TP1 220 +/- 8 deg C
	pressure roller:	TP2 220 +/- 8 deg C
	outside heating roller:	TP3 250 +/- 10 deg C
	- detection of thermistor open circuit	

Item	Description	
Separation claw	upper/lower separation claw (contact type)	
Cleaning mechanism	fixing roller	cleaning web
	pressure roller	none
	outside heating roller	none

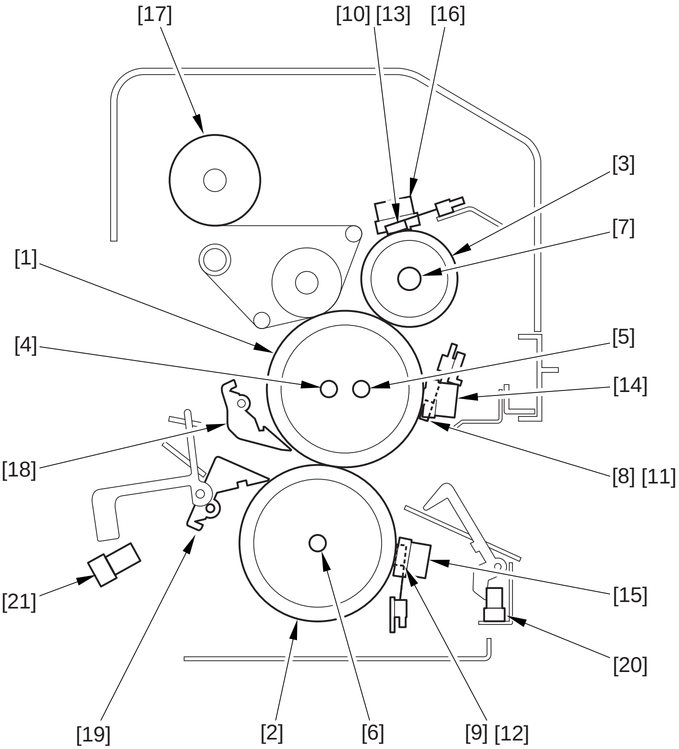
9.1.2 Major Components

The following shows the major components of the fixing system:

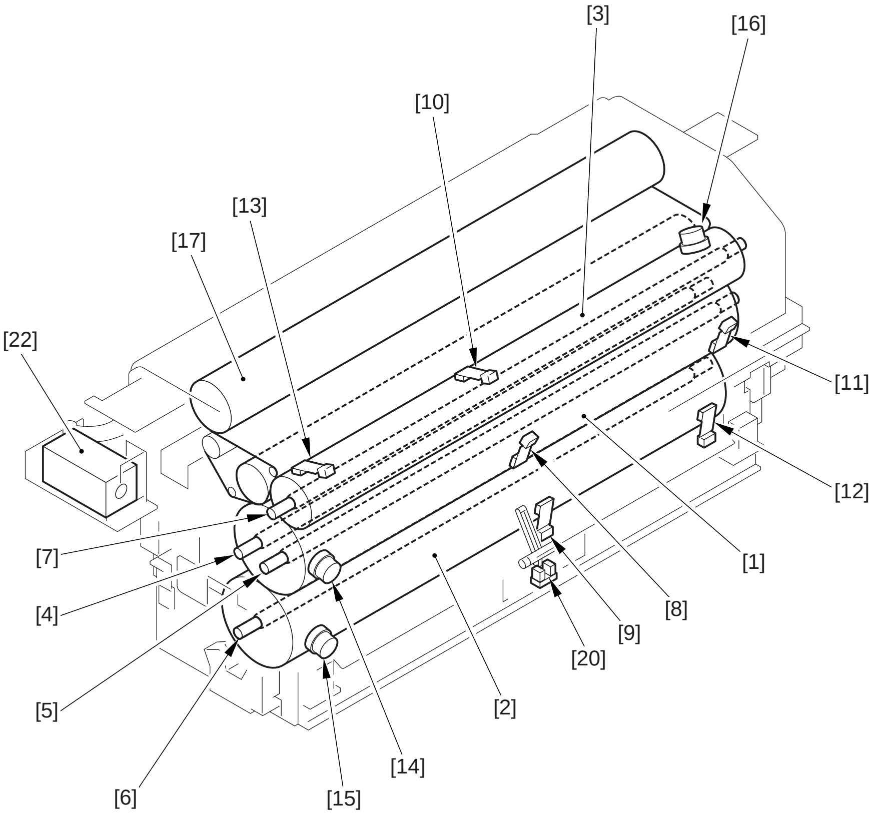
T-9-2

Component		Notation	Description
Diameter of fixing roller			60 mm
Diameter of pressure roller			60 mm
Diameter of outside heating roller			36 mm
Fixing main heater		H1	halogen heater; 430 W (100 V), 450 W (120/230 V)
Fixing sub heater		H2	halogen heater; 400 W (100/120/230 W)
Pressure heater		H3	halogen heater; 400 W (100/120/230 W)
Outside heater		H4	halogen heater; 400 W (100 V), 500 W (120/230 V)
Main thermistor	fixing	THM1	contact type (thermal control, overheating detection)
	pressure	THM2	contact type (temperature control, overheating detection)
	outside heating	THM3	contact type (temperature control, overheating detection)

Component		**Notation**	**Description**
Sub thermistor	fixing	THM4	Contact type (overheating detection)
	pressure	THM5	Contact type (overheating detection)
	outside heating	THM6	Contact type (overheating detection)
Thermal switch	fixing	TP1	contact type (220 +/- 8 deg C)
	pressure	TP2	contact type (220 +/- 8 deg C)
	outside heating	TP3	contact type (250 +/- 10 deg C)
Cleaning web			driven by fixing web solenoid (SL2) - If large size paper (B4 or larger), goes on twice per sheet - If small size (smaller than B4), goes on once per sheet
Separation claw (upper)			contact type
separation claw (lower)			contact type
Fixing inlet sensor		PS11	residual jam detection
Inside delivery sensor		PS12	detects delay/residual jam
Web solenoid		SL2	takes up cleaning web
Fixing motor		M4	DC brushless motor
Outside heating roller shift motor		M22	stepping motor


[17]
[10] [13]
[16]
[3]
[7]
[1]
[4]
[5]
[14]
[18]
[8] [11]
[21]
[15]
[20]
[19]
[2]
[6]
[9] [12]

F-9-1



F-9-2

T-9-3

[1]	Fixing roller	[12]	Pressure sub thermistor
[2]	Pressure roller	[13]	Outside heating sub thermistor
[3]	Outside heater roller	[14]	Fixing thermal switch
[4]	Fixing main heater	[15]	Pressure thermal switch
[5]	Fixing sub heater	[16]	Outside heating thermal switch
[6]	Pressure heater	[17]	Cleaning web
[7]	Outside heating roller heater	[18]	Separation claw (upper)

[8] Fixing main thermistor

[9] Pressure main thermistor

[10] Outside heating main thermistor

[11] Fixing sub thermistor

[19] Separation claw (lower)

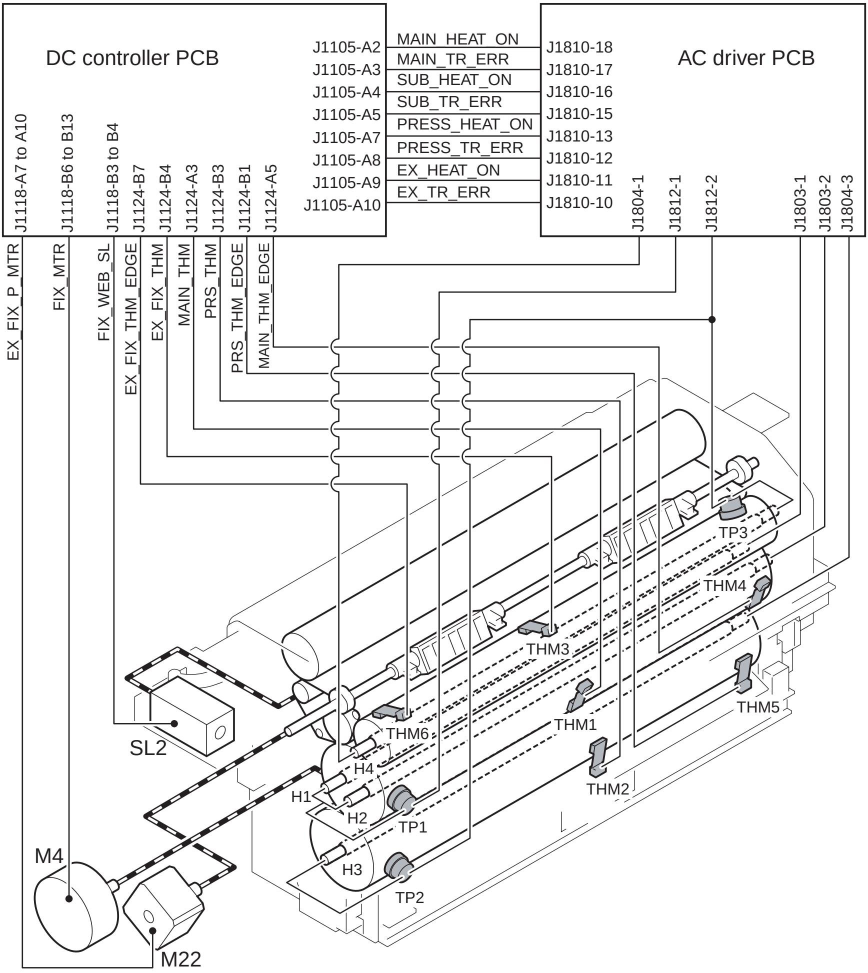
[20] Fixing inlet sensor

[21] Inside delivery sensor

[22] Web solenoid

9.1.3 Construction of the Control System

The following shows the major components of the fixing system:

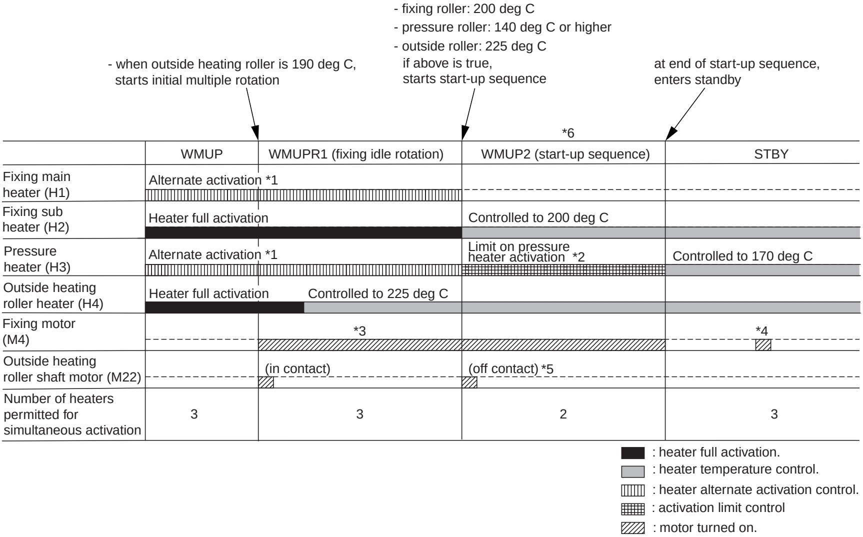

DC controller PCB
AC driver PCB
J1105-A2
J1105-A3
J1105-A4
J1105-A5
J1105-A7
J1105-A8
J1105-A9
J1105-A10
MAIN_HEAT_ON
MAIN_TR_ERR
SUB_HEAT_ON
SUB_TR_ERR
PRESS_HEAT_ON
PRESS_TR_ERR
EX_HEAT_ON
EX_TR_ERR
J1810-18
J1810-17
J1810-16
J1810-15
J1810-13
J1810-12
J1810-11
J1810-10
J1118-A7 to A10
J1118-B6 to B13
J1118-B3 to B4
J1124-B7
J1124-B4
J1124-A3
J1124-B3
J1124-B1
J1124-A5
J1804-1
J1812-1
J1812-2
J1803-1
J1803-2
J1804-3
EX_FIX_P_MTR
FIX_MTR
FIX_WEB_SL
EX_FIX_THM_EDGE
EX_FIX_THM
MAIN_THM
PRS_THM
PRS_THM_EDGE
MAIN_THM_EDGE
TP3
THM4
THM3
THM6
THM1
THM5
THM2
SL2
H4
H1
H2
TP1
H3
TP2
M4
M22

F-9-3

9.2 Basic Sequence

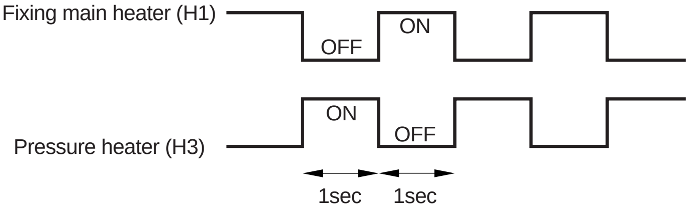
9.2.1 Sequence of Operation at Power-On

The machine starts WMUPR1 (fixing idle rotation) when the surface temperature of the outside heating roller reaches 190 deg C. It then starts WMUP2 (start-up sequence) when the fixing roller exceeds 200 deg C, the pressure roller exceeds 140 deg C, and the outside heating roller exceeds 225 deg C, at the end of which it enters the standby state.


- fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- outside roller: 225 deg C
if above is true,
starts start-up sequence
- when outside heating roller is 190 deg C,
starts initial multiple rotation
at end of start-up sequence,
enters standby
*6
WMUP
WMUPR1 (fixing idle rotation)
WMUP2 (start-up sequence)
STBY
Fixing main heater (H1)
Alternate activation *1
Fixing sub heater (H2)
Heater full activation
Controlled to 200 deg C
Pressure heater (H3)
Alternate activation *1
Limit on pressure heater activation *2
Controlled to 170 deg C
Outside heating roller heater (H4)
Heater full activation
Controlled to 225 deg C
Fixing motor (M4)
*3
*4
Outside heating roller shaft motor (M22)
(in contact)
(off contact) *5
Number of heaters permitted for simultaneous activation
3
3
2
3
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: activation limit control
: motor turned on.

F-9-4

*1: As many as 3 heaters may simultaneously be turned on during the warm-up period (other than start-up sequence WMUP2). To start up individual rollers in the shortest time possible under the limit, the fixing main heater (H1) and the pressure heater (H34) are turned on alternately.


Fixing main heater (H1)
ON
OFF
ON
OFF
Pressure heater (H3)
1sec
1sec

F-9-5

*2: As many as 2 heaters may simultaneously be turned on during WMUP2 (start-up sequence). In other words, during this period, the pressure heater (H3) may go on only when the fixing sub heater (HJ2) or the outside heating roller heater (H4) is off.

*3: Rotates at 1/3 speed (92 mm/sec).

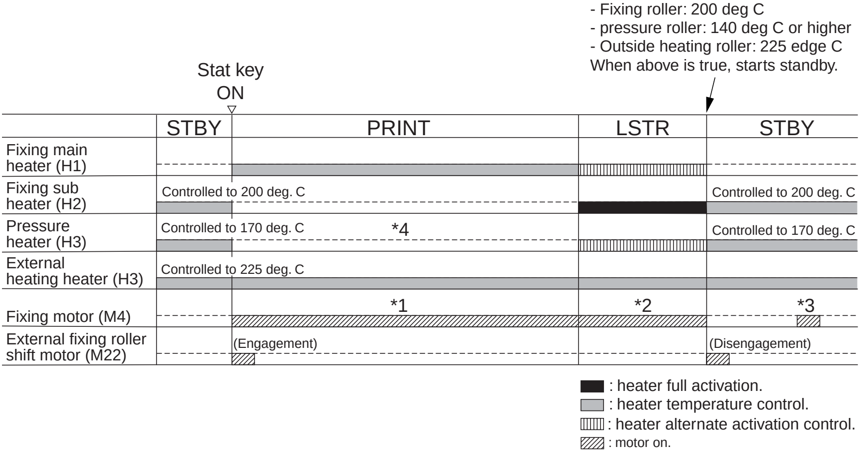
*4: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*5: When the fixing roller reaches 200 deg C, the outside heating roller moves away from the fixing roller.

*6: During WMUP2 (start-up sequence), the machine performs drum surface potential control, primary transfer ATVC control, and D-MAX control.

9.2.2 Basic Sequence of Operation (printing)

a. Mono Color (Black), Single-Sided


- Fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- Outside heating roller: 225 edge C
When above is true, starts standby.
Stat key
ON
STBY
PRINT
LSTR
STBY
Fixing main heater (H1)
Fixing sub heater (H2)
Controlled to 200 deg. C
Controlled to 200 deg. C
Pressure heater (H3)
Controlled to 170 deg. C
*4
Controlled to 170 deg. C
External heating heater (H3)
Controlled to 225 deg. C
Fixing motor (M4)
*1
*2
*3
External fixing roller shift motor (M22)
(Engagement)
(Disengagement)
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: motor on.

F-9-6

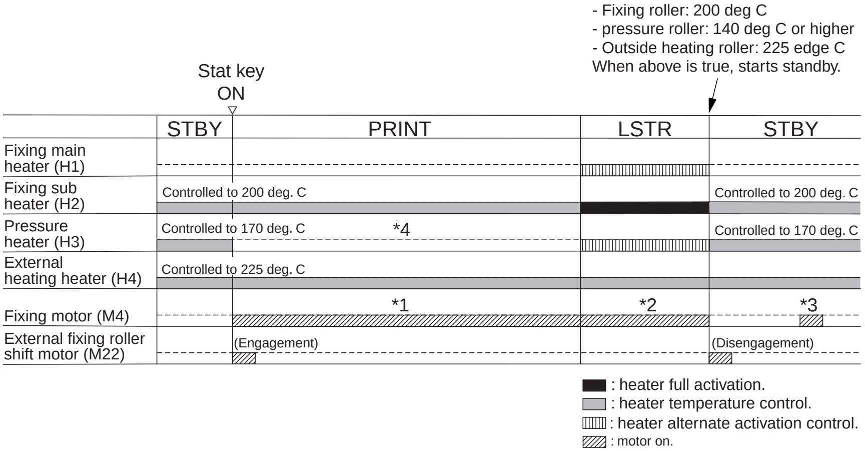
*1: Rotates at normal speed (276 mm/sec).

*2: Rotates at 1/3 speed (92 mm/sec).

*3: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*4: In the case of the 120/230-V model, the 400-W pressure heater is turned on at 200-W equivalent during printing (by turning on and off the pressure heater very cycle of the power supply, using a control signal generated by the DC controller).

b. Mono Color (Black), Double-Sided


- Fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- Outside heating roller: 225 edge C
When above is true, starts standby.
Stat key ON
STBY
PRINT
LSTR
STBY
Fixing main heater (H1)
Fixing sub heater (H2)
Controlled to 200 deg. C
Controlled to 200 deg. C
Pressure heater (H3)
Controlled to 170 deg. C
*4
Controlled to 170 deg. C
External heating heater (H4)
Controlled to 225 deg. C
Fixing motor (M4)
*1
*2
*3
External fixing roller shift motor (M22)
(Engagement)
(Disengagement)
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: motor on.

F-9-7

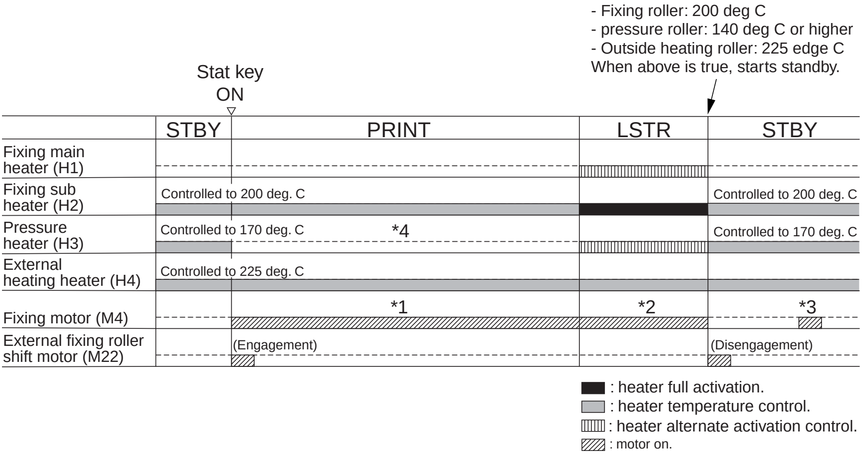
*1: Rotates at normal speed (276 mm/sec).

*2: Rotates at 1/3 speed (92 mm/sec).

*3: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*4: In the case of the 120/230-V model, the 400-W pressure heater is turned on at 200-W equivalent during printing (by turning on and off the pressure heater for every single cycle of the power supply using a control signal generated by the DC controller).

c. Full Color


- Fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- Outside heating roller: 225 edge C
When above is true, starts standby.
Stat key
ON
STBY
PRINT
LSTR
STBY
Fixing main heater (H1)
Fixing sub heater (H2)
Controlled to 200 deg. C
Controlled to 200 deg. C
Pressure heater (H3)
Controlled to 170 deg. C
*4
Controlled to 170 deg. C
External heating heater (H4)
Controlled to 225 deg. C
Fixing motor (M4)
*1
*2
*3
External fixing roller shift motor (M22)
(Engagement)
(Disengagement)
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: motor on.

F-9-8

*1: In the case of plain paper (64 to 105 g/m2), rotates at normal speed (276 mm/sec); if heavy paper 1 (106 to 163 g/m2), rotates at 2/3 speed (184 mm/sec); if heavy paper 2 (64 to 209 g/m2), heavy paper 3 (164 to 250 g/m2) or transparency, rotates at 1/3 speed (92 mm/sec).

*2: Rotates at 1/3 speed (92 mm/sec).

*3: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*4: In the case of the 120/230-model, the 400-W pressure heater is turned on at 200-W during printing (by turning on and off the pressure heater for every single cycle of the power supply using a control signal generated by the DC controller.

9.3 Various Control Mechanisms

9.3.1 Controlling the Speed of the Fixing Roller

9.3.1.1 Controlling the Speed According to Paper Type

The machine controls the fixing roller to any of 3 speeds according to paper yep.

T-9-4

	Paper type	**Fixing speed**
Mono color print	plain paper	normal speed (276 mm/sec)
	heavy paper, transparency, postcard	normal speed (276 mm/sec)
Color print	plain paper (64 to 105 g/m2)	normal speed (276 mm/sec)
	heavy paper (106 to 163 g/m2), postcard	2/3 speed (184 mm/sec)
	heavy paper 2 (164 to 209 g/m2), heavy paper 3 (210 to 250 g/m2), transparency	1/3 speed (92 mm/sec)

9.3.1.2 Controlling the Speed for Large Volume Printing (down-sequence)

If the main thermistor (THM1) of the machine's fixing roller identifies the surface temperature of the fixing roller as being any of the following, the machine starts down-sequence, in which distance between sheets is increased to decrease the speed of printing, thereby preventing poor fixing otherwise caused by drops in the roller temperature when continuous printing is under way.

The speed of printing is relatively low in color mode and, therefore, the temperature of the fixing roller rarely drops, thus not calling for down-sequence.

The following is a table of control mechanisms used for down-sequence prepared according to site environments and paper types; the notations within the table indicate the following:

LV: down-sequence level
deg C: temperature of the fixing roller triggering down-sequence

PPM: printing speed

Toner fixing starts to fail when the temperature of the fixing roller drops to level 4 or below. The machine, therefore, stops (suspends) printing when it detects a level 4 condition; it then starts (resumes) printing using the speed it used at the start when the temperature of the fixing roller returns to the recovery level.

If the room temperature is less than 20 deg C and heavy paper or a transparency is used, the machine reduces its print speed (except when heavy paper 1 is used for the 120V or 230V model).

Memo:

If you changed the setting in service mode(*), the particulars of the down sequence table may not be as shown below: for instance, if '1' (priority on fixing) is selected, the down sequence start temperature tends to be slightly higher; on the other hand, if '2' is selected (priority on productivity), the temperature tends to be slightly lower.

* The following applies:
Plan paper: COPIER>OPTION>BODY>FIX-TEMP
Heavy paper 1: COPIER>OPTION>BODY>T1-TEMP
Heavy paper 2: COPIER>OPTION>BODY>T2-TEMP
Heavy paper 3, transparency: COPIER>OPTION>BODY>OHP-TEMP

a. 100V Model, A4 Paper, Room Temperature of 20 deg C or Higher

T-9-5

Plain paper			**Heavy paper 1**			**Heavy paper 2**			**Heavy paper 3/ transparency**		
LV	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**
Initial		68	Initial		68	Initial		68	Initial		40
1	174	60	1	184	40	1	184	40	1	184	40
2	173	50	2	180	30	2	180	30	2	180	30
3	172	35	3	176	20	3	176	20	3	176	20
4	170	Stop	4	173	Stop	4	173	Stop	4	173	Stop

Plain paper			Heavy paper 1			Heavy paper 2			Heavy paper 3/ transparency		
LV	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**
Recovery	185	68	Recovery	200	68	Recovery	200	68	Recovery	200	40

b. 100-V Model, A4 Paper, Room Temperature of Lower Than 20 deg C

T-9-6

Plain paper			Heavy paper 1			Heavy paper 2			Heavy paper 3/ transparency		
LV	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**
Initial		68	Initial		30	Initial		30	Initial		30
1	174	60	1			1			1		
2	173	50	2	188	20	2	188	20	2	188	20
3	172	35	3	184	15	3	184	15	3	184	15
4	170	Stop	4	182	Stop	4	182	Stop	4	182	Stop
Recovery	185	68	Recovery	200	30	Recovery	200	30	Recovery	200	30

c. 120/230-V Model, A4 Paper, Room Temperature of 20 deg C or Higher

T-9-7

Plain paper			Heavy paper 1			Heavy paper 2			Heavy paper 3/ transparency		
LV	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**	**LV**	**deg C**	**PPM**
Initial		68	Initial		68	Initial		68	Initial		40
1	171	60	1	184	50	1	184	50	1	184	40

Plain paper			Heavy paper 1			Heavy paper 2			Heavy paper 3/ transparency		
LV	deg C	PPM	LV	deg C	PPM	LV	deg C	PPM	LV	deg C	PPM
2	170	50	2	180	40	2	180	40	2	176	30
3	169	35	3	176	30	3	176	30	3	174	25
4	167	Stop	4	173	Stop	4	173	Stop	4	173	Stop
Recovery	185	68	Recovery	200	68	Recovery	200	68	Recovery	200	40

d. 120/230-V Model, A4 Paper, Room Temperature of Lower Than 20 deg C

T-9-8

Plain paper			Heavy paper 1			Heavy paper 2			Heavy paper 3/ transparency		
LV	deg C	PPM	LV	deg C	PPM	LV	deg C	PPM	LV	deg C	PPM
Initial		68	Initial		68	Initial		40	Initial		40
1	171	60	1	188	40	1			1		
2	170	50	2	182	30	2	188	30	2	188	30
3	169	35	3	178	20	3	184	20	3	184	20
4	167	Stop	4	176	Stop	4	182	Stop	4	182	Stop
Recovery	185	68	Recovery	200	68	Recovery	200	40	Recovery	200	40

9.3.1.3 Interval Rotation

To prevent deformation that could otherwise occur on the fixing roller (nip) if the machine is left alone for a long time in a temperature control state, the fixing roller is rotated (interval rotation) at 92 mm/sec (1/3 speed) every 30 min while the machine is in standby.

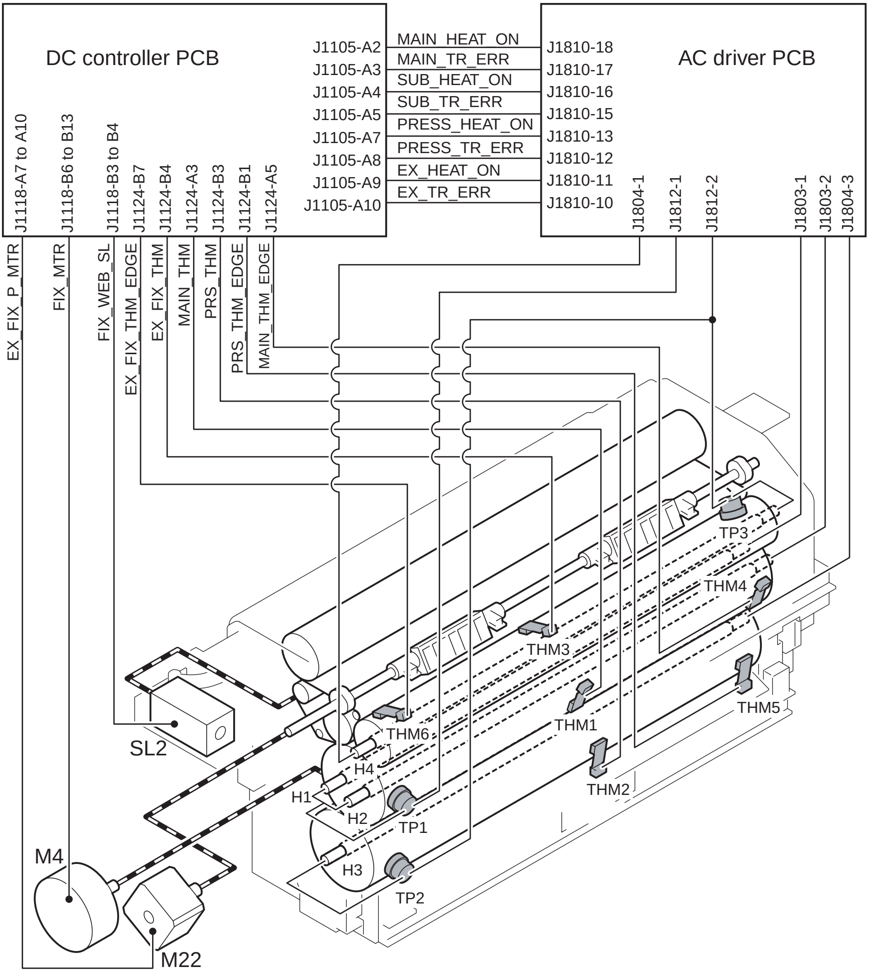
The interval rotation is also executed in power save mode and low power mode, and the intervals of rotation may be changed in service mode: COPIER>OPTION>BODY>FX-CROT).

9.3.2 Controlling the Fixing Roller Temperature

9.3.2.1 Overview

Each of the heat rollers of the fixing assembly is controlled based on the output of the main thermistor mounted in contact with the center of the roller. The sub thermistor mounted in contact with the edge of the roller is used to detect overheating at the edge of the roller, which can occur when small-size paper (e.g., A4R) is move past continuously.

The mechanisms used to control these individual heat rollers are as follows:


DC controller PCB
AC driver PCB
J1105-A2
J1105-A3
J1105-A4
J1105-A5
J1105-A7
J1105-A8
J1105-A9
J1105-A10
MAIN_HEAT_ON
MAIN_TR_ERR
SUB_HEAT_ON
SUB_TR_ERR
PRESS_HEAT_ON
PRESS_TR_ERR
EX_HEAT_ON
EX_TR_ERR
J1810-18
J1810-17
J1810-16
J1810-15
J1810-13
J1810-12
J1810-11
J1810-10
J1118-A7 to A10
J1118-B6 to B13
J1118-B3 to B4
J1124-B7
J1124-B4
J1124-A3
J1124-B3
J1124-B1
J1124-A5
J1804-1
J1812-1
J1812-2
J1803-1
J1803-2
J1804-3
EX_FIX_P_MTR
FIX_MTR
FIX_WEB_SL
EX_FIX_THM_EDGE
EX_FIX_THM
MAIN_THM
PRS_THM
PRS_THM_EDGE
MAIN_THM_EDGE
TP3
THM4
THM3
THM6
THM1
THM5
THM2
SL2
H4
H1
H2
TP1
H3
TP2
M4
M22

F-9-9

9.3.2.2 At Power-On

The fixing roller is heated by the fixing main heater (H1) and the fixing sub heater (H2), while the pressure roller is heated by the pressure heater (H3). The outside heating roller, on the other hand, is heated by the outside heating roller heater (H4).

During the warm-up period (other than start-up sequence), as many as 3 heaters may simultaneously be turned on. To start up each of the rollers in the shortest time possible, the fixing sub heater and the outside heating roller heater are turned on for full activation, while alternately turning on the fixing main heater and the pressure heater.

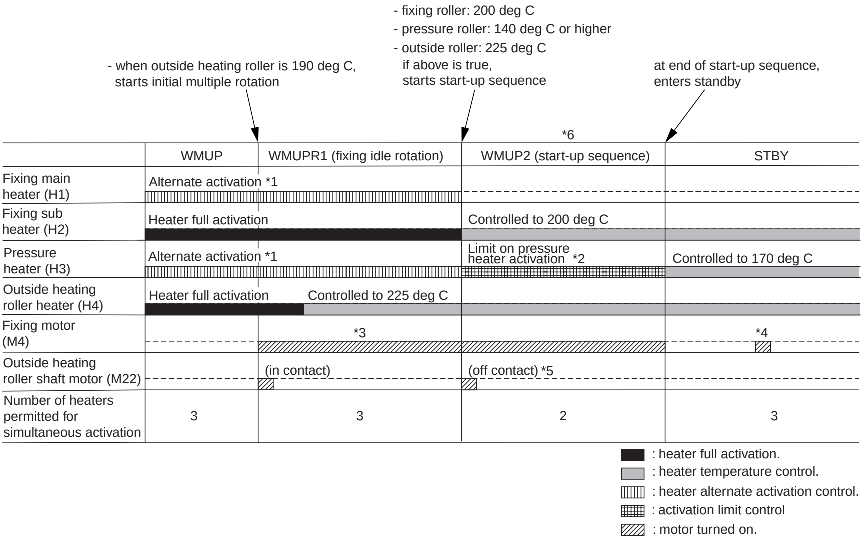
When the outside heating roller reaches 190 deg C, the outside pressure roller shift motor (M22) goes on to move the outside heating roller into contact with the fixing roller, thereby starting fixing idle rotation. The outside heating roller remaining in contact with the fixing roller helps increase the temperature of the fixing roller.

When the fixing roller reaches 200 deg C, the outside heating roller shift motor (M22) goes on so that the outside heating roller moves away from the fixing roller.

When the fixing roller reaches 200 deg C, the pressure roller reaches 140 deg C, and the outside heating roller reaches 225 deg C, the machine starts start-up sequence, causing the fixing main heater to go off. The outside heating roller heater is put under temperature control when the outside heating roller reaches 225 deg C; on the other hand, the fixing sub heater is put under temperature control when the fixing roller reaches 200 deg C.

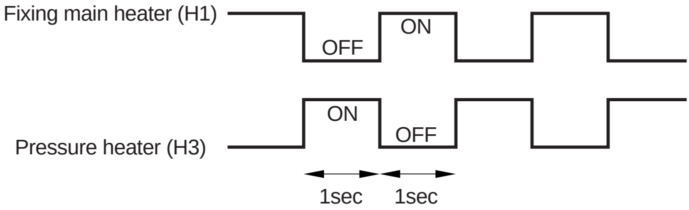
As no more than 2 heaters may be turned on simultaneously while start-up sequence is under way, the pressure heater may be turned on only while either the outside heating roller heater or the fixing sub heater remains off. When the temperature of the pressure roller reaches 170 deg C, the pressure heater is put under temperature control.

The warm-up period ends when the start-up sequence ends, causing the machine to enter the standby state.


- when outside heating roller is 190 deg C,
starts initial multiple rotation
- fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- outside roller: 225 deg C
if above is true,
starts start-up sequence
at end of start-up sequence,
enters standby
*6
WMUP
WMUPR1 (fixing idle rotation)
WMUP2 (start-up sequence)
STBY
Fixing main heater (H1)
Alternate activation *1
Fixing sub heater (H2)
Heater full activation
Controlled to 200 deg C
Pressure heater (H3)
Alternate activation *1
Limit on pressure heater activation *2
Controlled to 170 deg C
Outside heating roller heater (H4)
Heater full activation
Controlled to 225 deg C
Fixing motor (M4)
*3
*4
Outside heating roller shaft motor (M22)
(in contact)
(off contact) *5
Number of heaters permitted for simultaneous activation
3
3
2
3
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: activation limit control
: motor turned on.

F-9-10

*1: As many as 3 heaters may be turned on at a time during warm-up (other than during start-up sequence WMUP2). To start up the rollers in the shortest time possible under this limit, the fixing heater (H1) and the pressure heater (H3) are turned on alternately.


Fixing main heater (H1)
OFF
ON
Pressure heater (H3)
ON
OFF
1sec
1sec

F-9-11

*2: As many as 2 heaters may be turned on at a time while start-up sequence (WMUP2) is under way; in other words, the pressure heater (H3) may be turned on only when either the fixing sub heater (H2) or the outside heating roller heater (H) is off.

*3: Rotates at 1/3 speed (92 mm/sec).

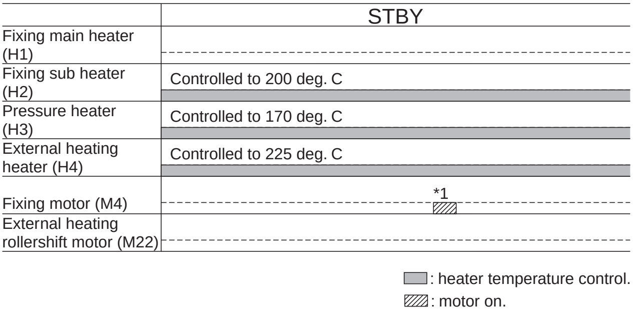
*4: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*5: The outside heating roller moves away from the fixing roller when the fixing roller reaches 200 edge C.

*6: While start-up sequence (WMUP2) is under way, the machine executes drum surface potential control, primary transfer ATVC control, and D-MAX control.

9.3.2.3 In Standby

When the machine is in standby, the fixing roller is controlled to 200 deg C, pressure roller to 170 deg C, and outside heating roller to 225 deg C.

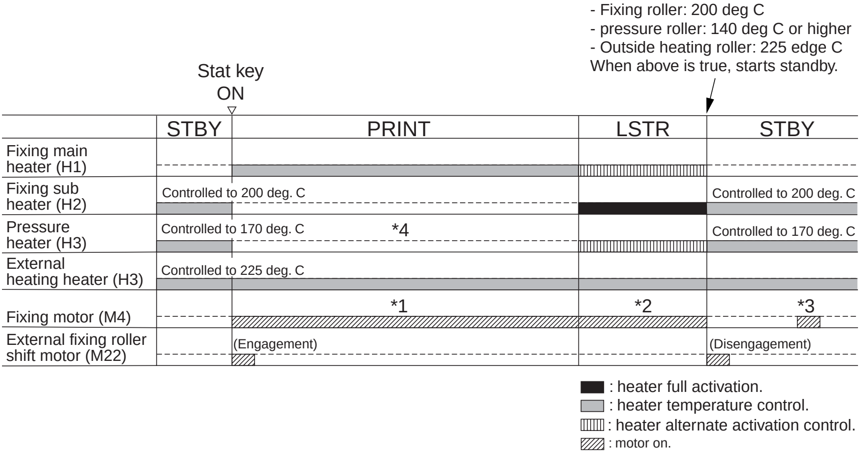

STBY
Fixing main heater (H1)
Fixing sub heater (H2)
Controlled to 200 deg. C
Pressure heater (H3)
Controlled to 170 deg. C
External heating heater (H4)
Controlled to 225 deg. C
Fixing motor (M4)
*1
External heating rollershift motor (M22)
: heater temperature control.
: motor on.

F-9-12

*1: Rotates idly for 1 sec at 1/3 speed every 3 min after the fixing roller stops.

9.3.2.4 When Producing Mono Color (Black) Single-Sided Prints

A roller tends to be deprived of heat as a result of contact with paper while the machine is making mono color single-sided prints (especially in continuous printing). The machine, therefore, uses the fixing main heater (H1), which has high output, and executes temperature control at 200 deg C. The outside heating roller is controlled to 225 deg C by the work of the outside heating roller heater.


- Fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- Outside heating roller: 225 edge C
When above is true, starts standby.
Stat key ON
STBY
PRINT
LSTR
STBY
Fixing main heater (H1)
Fixing sub heater (H2)
Controlled to 200 deg. C
Controlled to 200 deg. C
Pressure heater (H3)
Controlled to 170 deg. C
*4
Controlled to 170 deg. C
External heating heater (H3)
Controlled to 225 deg. C
Fixing motor (M4)
*1
*2
*3
External fixing roller shift motor (M22)
(Engagement)
(Disengagement)
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: motor on.

F-9-13

*1: Rotates at normal speed (276 mm/sec).

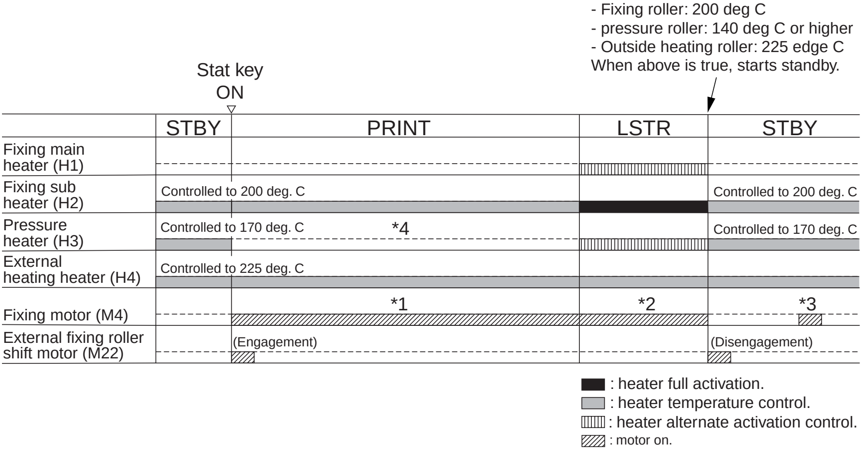
*2: Rotates at 1/3 speed (92 mm/sec).

*3: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*4: In the case of the 120/230-V model, the 400-W pressure heater is turned on at 200-W equivalent during printing (by turning on and off the pressure heater for every single cycle of the power supply using the control signal generated by the DC controller).

9.3.2.5 When Producing Mono Color (Black) Double-Sided Prints

The fixing roller is controlled to 200 deg C by the fixing sub heater (H2), and the outside heating roller heater is controlled to 225 deg C by the outside heating roller heater.


- Fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- Outside heating roller: 225 edge C
When above is true, starts standby.
Stat key
ON
STBY
PRINT
LSTR
STBY
Fixing main heater (H1)
Fixing sub heater (H2)
Controlled to 200 deg. C
Controlled to 200 deg. C
Pressure heater (H3)
Controlled to 170 deg. C
*4
Controlled to 170 deg. C
External heating heater (H4)
Controlled to 225 deg. C
Fixing motor (M4)
*1
*2
*3
External fixing roller shift motor (M22)
(Engagement)
(Disengagement)
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: motor on.

F-9-14

*1: Rotates at normal speed (276 mm /sec).

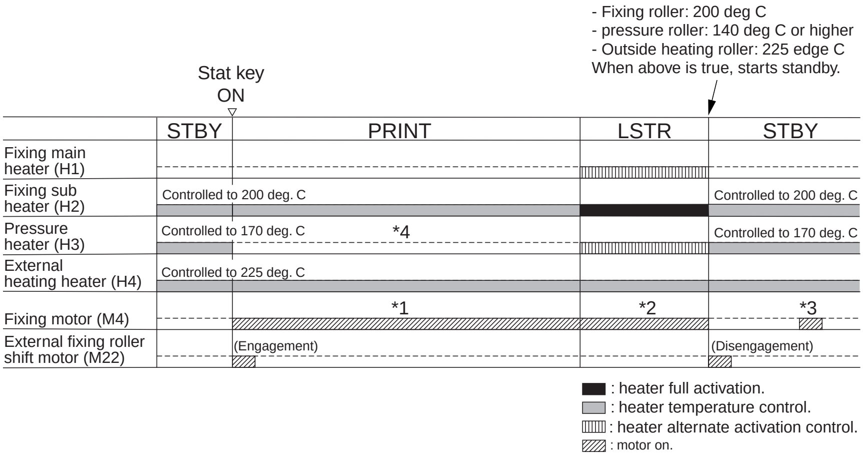
*2: Rotates at 1/3 speed (92 mm/sec).

*3: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*4: In the case of the 120/230-V model, the 400-W heater is turned on at 200-W equivalent during printing (by turning the pressure heater on and off for every single cycle of the power supply using the control signal generated by the DC controller).

9.3.2.6 When Producing Full Color Prints

The fixing roller is controlled to 200 deg C by the fixing sub heater (H2), and the outside heating roller is controlled to 225 deg C by the outside heating roller heater.


- Fixing roller: 200 deg C
- pressure roller: 140 deg C or higher
- Outside heating roller: 225 edge C
When above is true, starts standby.
Stat key ON
STBY
PRINT
LSTR
STBY
Fixing main heater (H1)
Fixing sub heater (H2)
Controlled to 200 deg. C
Controlled to 200 deg. C
Pressure heater (H3)
Controlled to 170 deg. C
*4
Controlled to 170 deg. C
External heating heater (H4)
Controlled to 225 deg. C
Fixing motor (M4)
*1
*2
*3
External fixing roller shift motor (M22)
(Engagement)
(Disengagement)
: heater full activation.
: heater temperature control.
: heater alternate activation control.
: motor on.

F-9-15

*1: In the case of plain paper (64 to 105 g/m2), rotates at normal speed (276 mm/sec); if heavy paper 1 (106 to 163 g/m2), at 2/3 speed (184 mm/sec); if heavy paper 2, heavy paper 3 (164 to 250 g/m2), or transparency, at 1/3 speed (92 mm/sec).

*2: Rotates at 1/3 speed (92 mm/sec).

*3: Rotates idly for 1 sec at 1/3 speed every 30 min after the fixing roller stops.

*4: In the case of the 120/230-V model, the 400-W pressure heater is turned on at 200-W equivalent during printing (by turning on and off the pressure heater for every single cycle of the power supply using a control signal generated by the DC controller).

9.3.2.7 With Power Save Mode Enabled

The following shows the temperature to which the individual rollers of the fixing assembly are controlled when the machine enters low power mode or power save mode, with the lengths of time between when the power save mode is disabled and when the machine enters the standby (STBY) state.

In sleep mode, all fixing heaters are off.

T-9-9

	STBY	**Low power mode**	**Power save mode**		
			-10%	**-25%**	**-50%**
Fixing roller	200 deg C	110 deg C	180 deg C	150 deg C	85 deg C
Pressure roller	170 deg C	110 deg C	170 deg C	150 deg C	85 deg C
Outside heating roller	225 deg C	110 deg C	200 deg C	150 deg C	85 deg C
Recovery time	--	about 240 sec	about 70 sec	about 150 sec	about 450 sec

9.3.2.8 Controlling the Overheating at the End of the Roller

If the end of the heat roller overheats as when small-size paper (e.g., A4R) is moved past continuously and, as a result, if the sub thermistor detects any of the following temperatures, the heater will be forced off to avoid damage to the heat roller.

The overheating control mechanism is executed when printing in mono color mode or at time of recovery, and is not executed in color mode, in which sheets are moved at longer intervals.

T-9-10

Heater (that is forced off)	**Sub thermistor**	**Control temperature**
Fixing main/sub heater (H1/H2)	THM4	215 deg C
Pressure heater (H3)	THM5	185 deg C
Outside heating roller heater (H4)	THM6	240 deg C

9.3.3 External Heat Roller Drive Control

9.3.3.1 Overview

The outside heating roller helps the temperature control mechanism for the fixing roller by remaining in contact with the fixing roller during warm-up, printing, and last rotation.

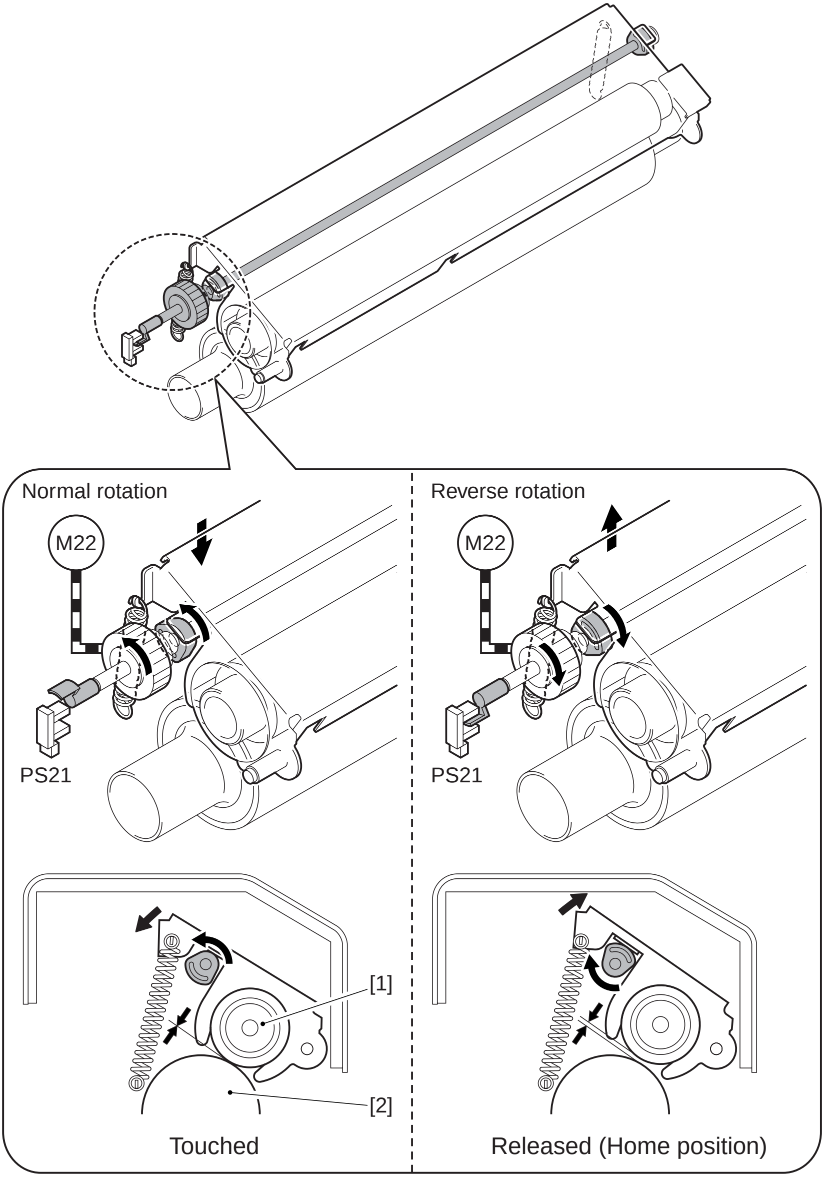
The outside heating roller is moved in contact with or away from the fixing roller by the drive of the outside heating roller shift motor (M22).

When the temperature of the fixing roller reaches 190 deg C during warm-up to start initial multiple rotation or when printing starts, the outside heating roller shift motor (M22) goes on (normal direction of rotation) to move the outside heating roller in contact with the fixing roller.

When the temperature of the fixing roller reaches 200 deg C during warm-up or when last rotation ends, the outside heating roller shift motor goes on (in reverse direction of rotation) to move the outside heating roller away from the fixing roller. When the paper jam also occurs, the outside heating roller shift motor goes on to move the outside heating roller away from the fixing roller.

The timing at which the outside heating roller is moved is monitored using the outside heating roller HP sensor (PS21) for the following:

- When the main power switch is turned on
- When the front cover, upper right cover, or lower right cover is opened/closed
- When the power save mechanism (power save mode, low power mode, sleep mode) is disabled


Normal rotation
M22
PS21
Reverse rotation
M22
PS21
[1]
[2]
Touched
Released (Home position)

F-9-16

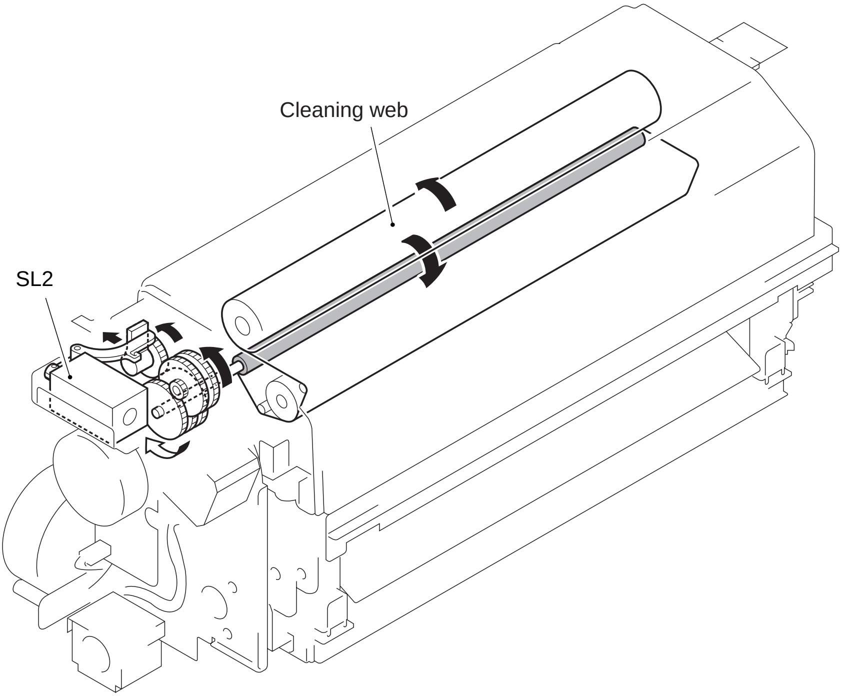
[1] Outside heating roller

[2] Fixing roller

9.4 Fixing Cleaning Web Mechanisms

9.4.1 Overview

The cleaning web used to clean the fixing upper roller is fed by means of a one-way clutch (fixing web solenoid SL2). The web is fed coinciding with the detection of the leading edge of paper by the registration sensor (PS9) while printing is under way. The remaining length of the web is checked by the following 2 ways:

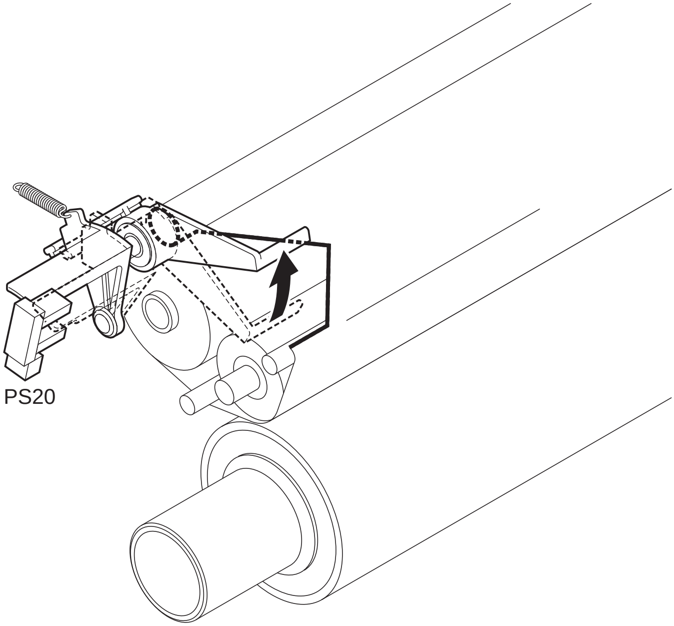


F-9-17

When the web detecting lever moves off the web at the cut-off, the lever that has been blocking the web length sensor (PS20) moves away from the sensor, thus causing the machine to indicate a pre-warning(*1) to alert the user that the web is running out. If the fixing web solenoid goes on 3,000 times(*2) without replacement of the web, the machine will then indicate 'E005' on its control panel.

*1: The alert indication may be disabled in service mode: COPIER>OPTION>USER>WEB-DISP.

*2: The count may be checked in service mode: COPIER>COUNTER>MISC>FIX-WEB.



F-9-18

⚠ Whenever you have replaced the fixing web, be sure to reset the following service mode item to '0':

COPIER>COUNTER>MISC>FIX-WEB
COPIER>COUNTER>DRBL-1>FX-WEB

9.4.2 Web Retaining Mechanism

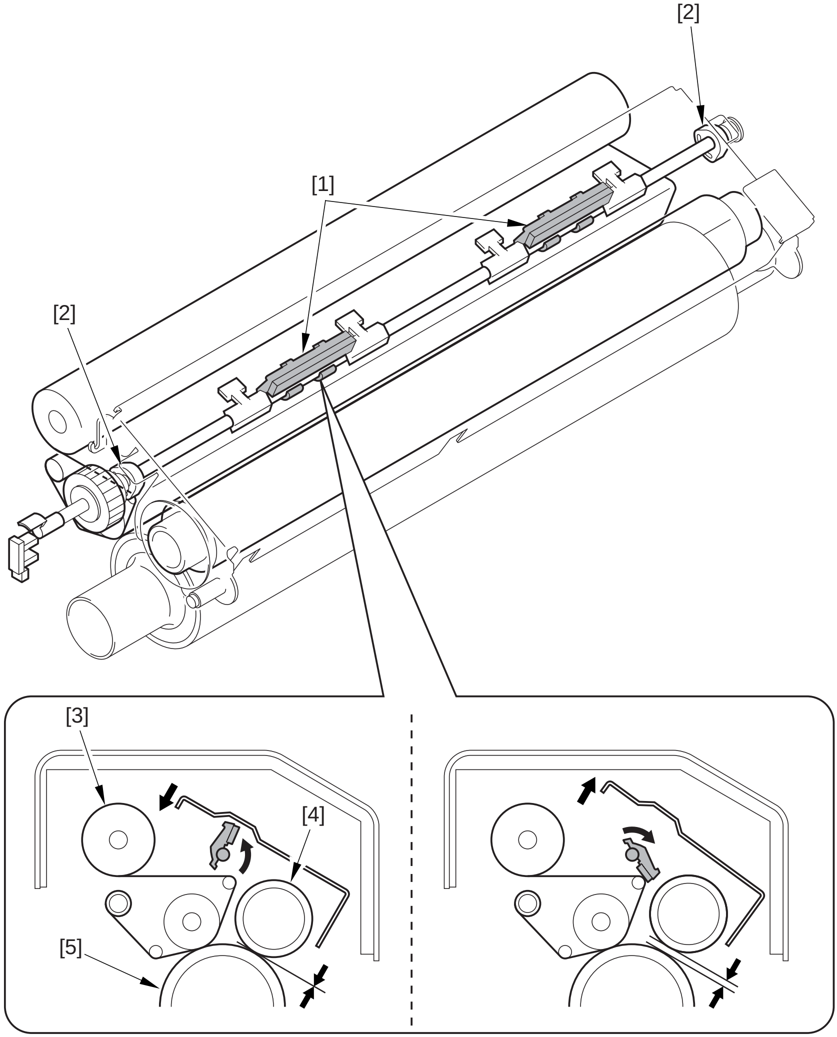
The web retaining pad is used to hold the web in place (i.e., to keep it from becoming slack) when the fixing roller is rotated in reverse, as when a paper jam is being removed.

The web retaining pad is fixed in place to the shaft to which the cam used to move the outside heating roller to and from the fixing roller is attached; while the outside heating roller is in contact with the fixing roller, the pad is away from the web, coming into contact to hold the web in place when the outside roller moves away from the fixing roller.

⚠

The machine indicates the message "Printer is warming up..." on its LCD while it executes last rotation after printing. While the message is on the LCD, the fixing roller is under temperature control, and the outside heating roller is in contact with the fixing roller, i.e., the web retaining pad is away from the web. If you open the front cover and turn the fixing assembly release knob, the web will become slack and possibly displaced. Do not open the front door while the message is on the LCD. If you must, do not turn the fixing assembly releasing knob.

The web retainer is also away from the web when you force the front cover to open while printing or fixing idle rotation is under way during warm-up: be sure to keep this in mind during service work.



F-9-19

[1] Web retaining pad

[2] Cam

[3] Cleaning Web

[4] Outside heating roller

[5] Fixing roller

9.5 Protective Functions

9.5.1 Detecting Overheating Using Thermistors

The main thermistor and the sub thermistor of individual rollers may detect any of the following temperatures; in response, the DC controller issues signals to cut off the heater drive circuit, thereby depriving the heaters of power.

T-9-11

	Main (middle)	**Sub (end)**
Fixing roller	235 deg C	245 deg C
Pressure roller	200 deg C	210 deg C
External heating roller	245 deg C	247 deg C

9.5.2 Cutting Off the Power Using Thermal Switches

If the reading of the inside temperatures of the thermal switch of individual rollers indicates a temperature higher hand the following, the thermal switch goes off to stop the power to the fixing heater:

Fixing roller: 220 +/-8 deg C
Pressure roller: 220 +/-8 deg C
Outside roller: 250 +/-10 deg C

9.5.3 Errors

Related Error

E000 (inadequate rise in temperature of the fixing assembly at power-on)
The main thermistor (THM1, THM2, THM3) has an open circuit or poor contact. The thermal switch (TP1, TP2, TP3) has an open circuit. The heater (H1, H2, H3, H4) has an open circuit. The AC driver PCB is faulty. The DC controller PCB is faulty.
A check is made during initial multiple rotation.

E001 (overheating of the fixing assembly)

The main thermistor (THM1, THM2, THM3) has an open circuit or poor contact. The sub thermistor (THM4, THM5, THM6) has an open circuit or poor contact. The thermal switch (TP1, TP2, TP3) has an open circuit. The heater (H1, H2, H3, H4) has an open circuit. The AC driver PCB is faulty. The DC controller PCB is faulty.
A check is made at all times.

E002 (inadequate rise in temperature of the fixing assembly)

The main thermistor (THM1, THM2, THM3) has an open circuit or poor contact. The thermal switch (TP1, TP2, TP3) has an open circuit. The heater (H1, H2, H3, H4) has an open circuit. the AC rive PCB is faulty. The DC controller PCB is faulty.
A check is made during initial multiple rotation.

E003 (abnormal drop in temperature of the fixing assembly after standby)

The main thermistor (THM1, THM2, THM3) has an open circuit or poor contact. The thermal switch (TP1, TP2, TP3) has an open circuit. The heater (H1, H2, H3, H4) has an open circuit. The AC driver PCB is faulty. The DC controller PCB is faulty.
Detail code: 004X
A check is made during standby.
Detail code: 005X
A check is made during printing.

E004 (fixing assembly protection circuit error)

The main thermistor (THM1, THM2, THM3) has an open circuit or poor contact. The sub thermistor (THM4, THM5, THM6) has an open circuit or poor contact. The AC driver PCB is faulty. The DC controller PCB is faulty.
A check is made during initial multiple rotation.

E005 (web take-up error)

The fixing web has been taken up. The web length sensor (PS20) is faulty. The DC controller PCB is faulty. The fixing web solenoid is not connected.

E006 (fixing assembly connection error)

The fixing/feed unit is not fitted correctly (the fixing assembly is not detected even when the front cover is identified as being closed). The DC controller PCB is faulty.
A check is made at all times.

E008 (fixing roller end of life)
As many as 20,000 prints(*) have been counted after a message has been issued to prompt replacement of the fixing roller. The DC controller is faulty.
* May be changed in service mode: COPIER>OPTION>BODY>FXERRLVL.

E009 (outside heating roller shift error)
The outside heating roller shift motor (M22) is faulty. The outside heating roller HP sensor (PS21) is faulty. The DC controller PCB is faulty.
A check is made at all times.

9.6 Parts Replacement Procedure

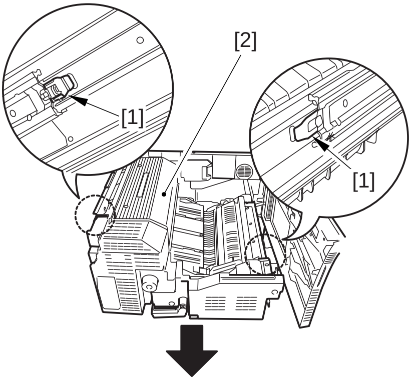
9.6.1 Fixing Unit

9.6.1.1 Removing the Fixing Assembly

1) Open the front cover.

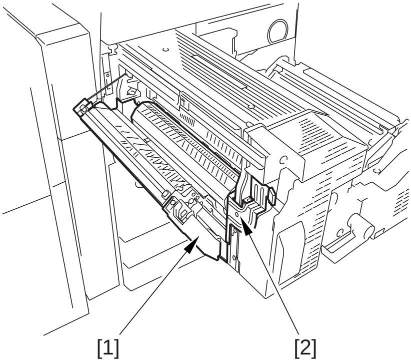
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/ feeding assembly [2].



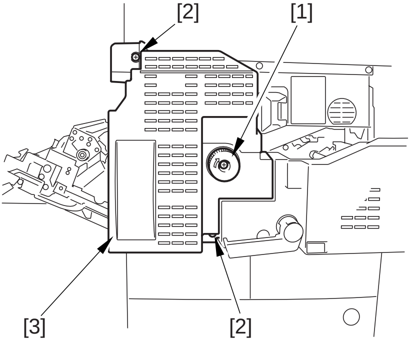
F-9-20

4) Open the reversal delivery cover [1] and the middle cover [2].



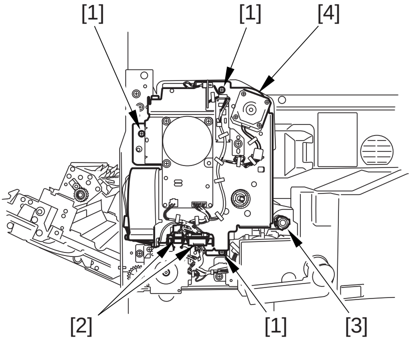
F-9-21

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



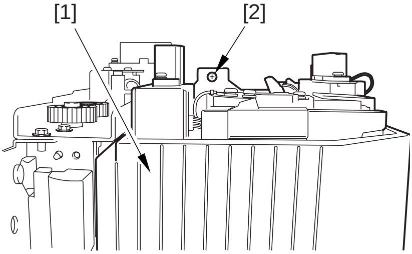
F-9-22

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



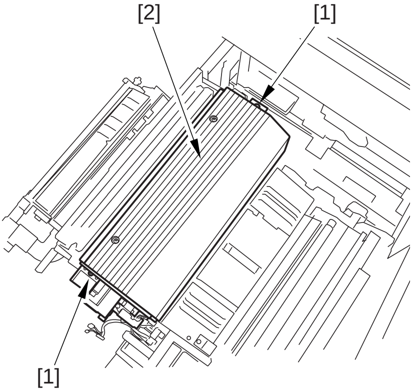
F-9-23

7) Remove the screw [2] found at the rear of the fixing assembly [1].



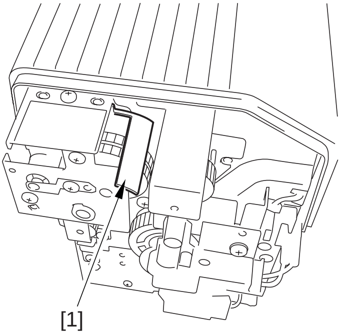
F-9-24

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-25

⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.

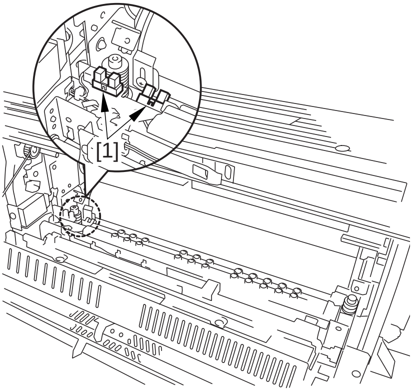


F-9-26

9.6.1.2 Points to Note When Mounting the Fixing Assembly

⚠ When fitting the fixing assembly into

the fixing/feeding assembly, take full care not to damage the 2 sensors [1].



F-9-27

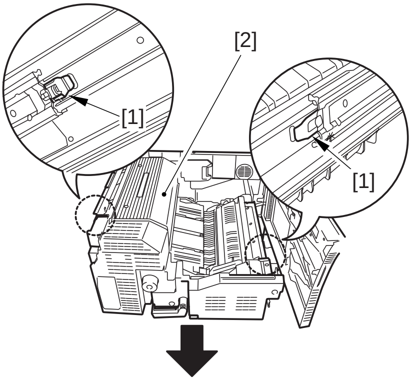
9.6.2 Fixing Roller

9.6.2.1 Removing the Fixing Assembly

1) Open the front cover.

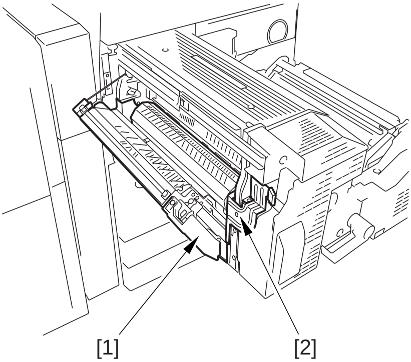
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



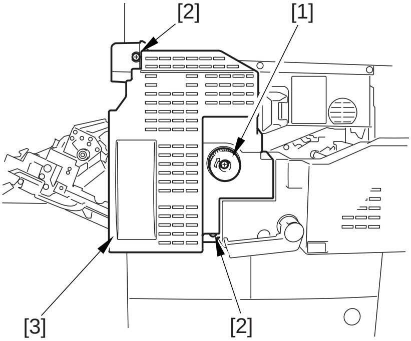
F-9-28

4) Open the reversal delivery cover [1] and the middle cover [2].



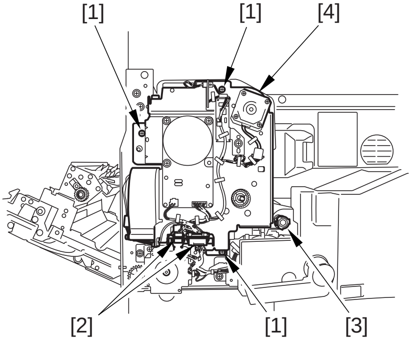
F-9-29

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



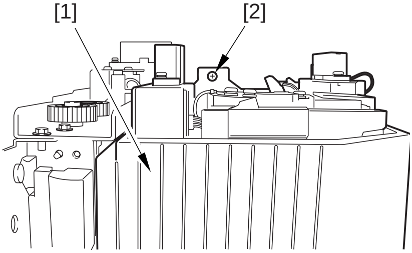
F-9-30

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



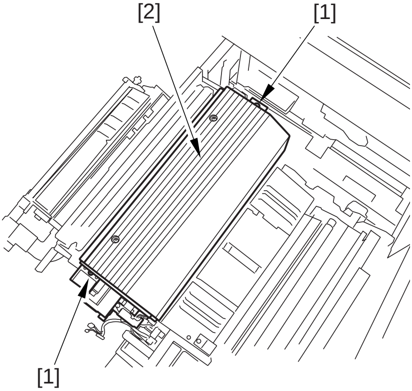
F-9-31

7) Remove the screw [2] found at the rear of the fixing assembly [1].



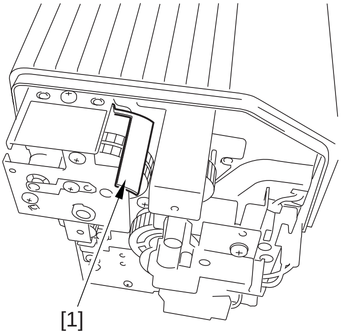
F-9-32

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-33

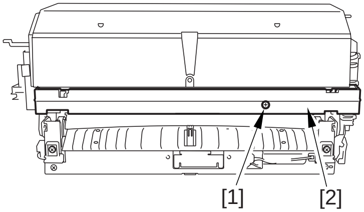
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-34

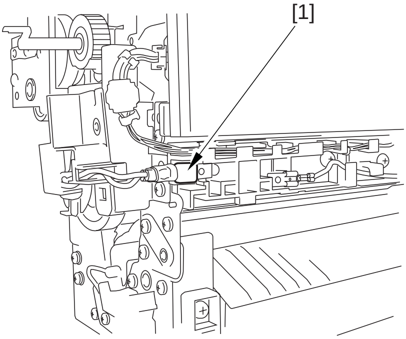
9.6.2.2 Removing the Fixing Upper Heater

1) Remove the screw [1], and shift the thermistor cover [2] to detach.



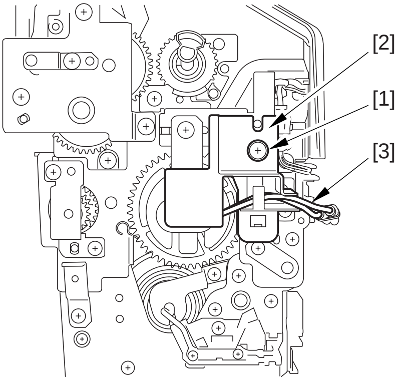
F-9-35

2) Remove the faston [1] of the heater.



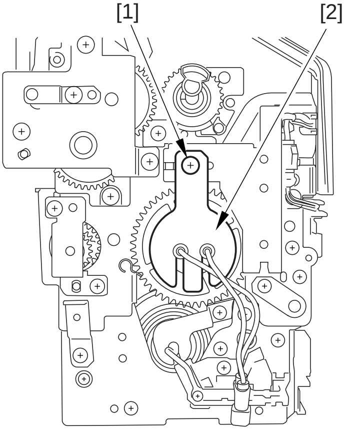
F-9-36

3) Remove the screw [1], and detach the heater cover [2] while moving the heater harness [3] out of the way.



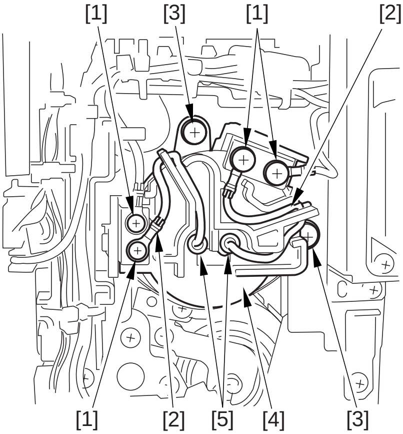
F-9-37

4) Remove the screw [1], and detach the heater retainer [2].



F-9-38

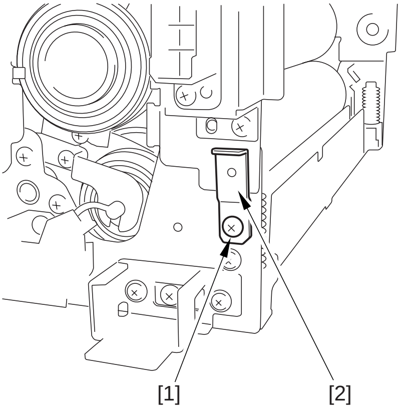
5) Remove the 4 screws [1], and move the heater harness [2] out of the way. Remove the 2 screws [3], and detach the heater cover [4]. Then, detach the heater [5].



F-9-39

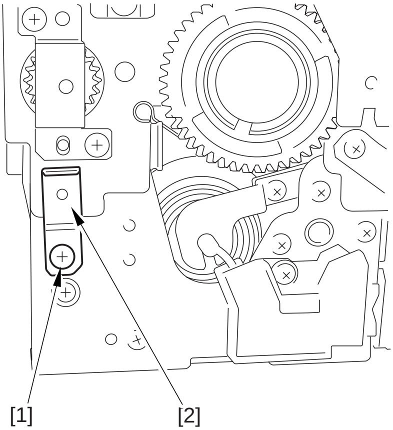
9.6.2.3 Removing the Fixing Roller

1) Remove the screws [1], and pull out the pin while pushing down on the fixing assembly.



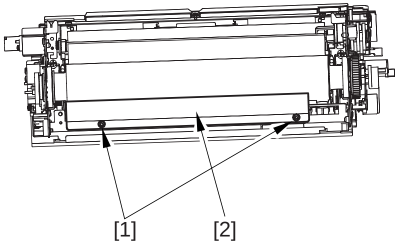
F-9-40

2) Remove the screw [1], and pull out the pin [2]; then, open the fixing assembly.



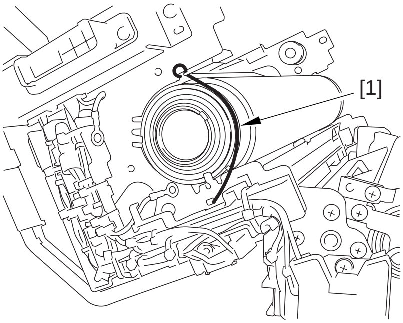
F-9-41

3) Remove 2 screws [1], and detach the upper inlet guide [2].

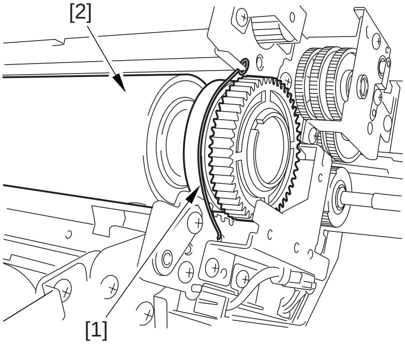


F-9-42

4) Remove the 2 wires [1], and detach the fixing roller [2] together with the gear and the bearing.

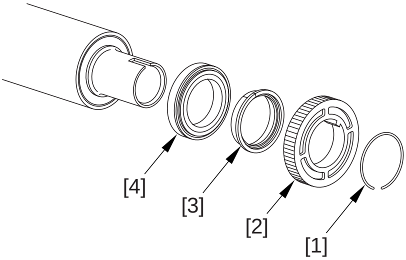


F-9-43



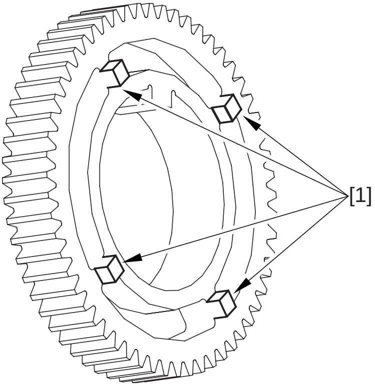
F-9-44

5) Remove the ring [1], gear [2], bush [3], and bearing [4] from the front in the order indicated.



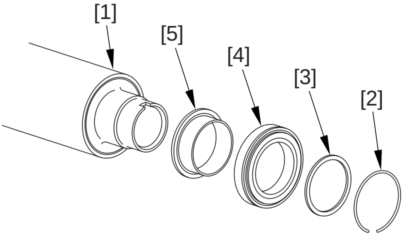
F-9-45

⚠ When mounting the gear you have removed previously, be sure that the protrusion [1] of the gear is toward the front of the machine.



F-9-46

6) Remove the ring [2], spacer [3], bearing [4], and bush [5] from the rear.



F-9-47

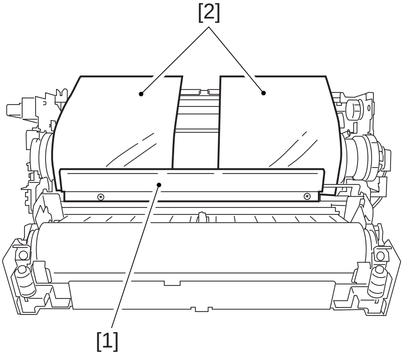
9.6.2.4 Points to Note When Removing the Fixing Roller

⚠

When mounting the inlet upper guide [1], be sure to place print paper [2] under the edge of the guide.

⚠

To detach the paper after the work, go thorough the following sequence: close the fixing assembly, while pushing the fixing assembly downward, fit 2 pins, tighten the screws, and then pull on the paper to detach.



F-9-48

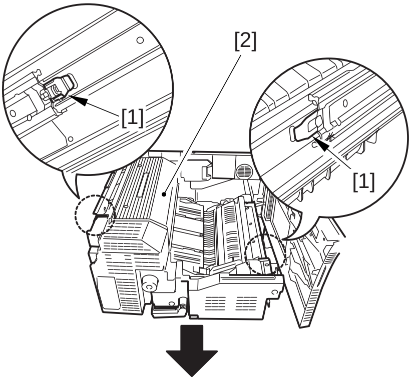
9.6.3 Pressure Roller

9.6.3.1 Removing the Fixing Assembly

1) Open the front cover.

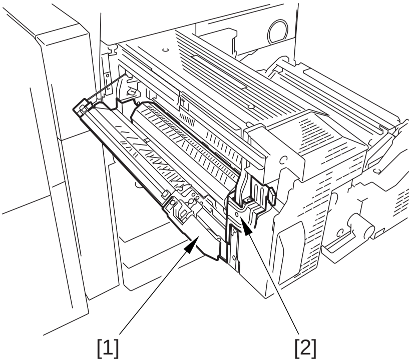
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



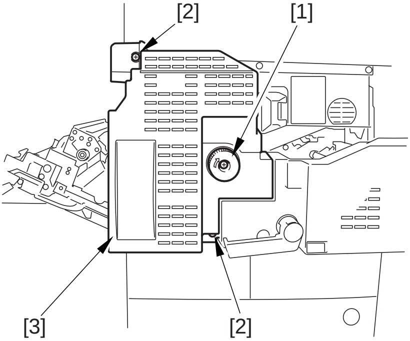
F-9-49

4) Open the reversal delivery cover [1] and the middle cover [2].



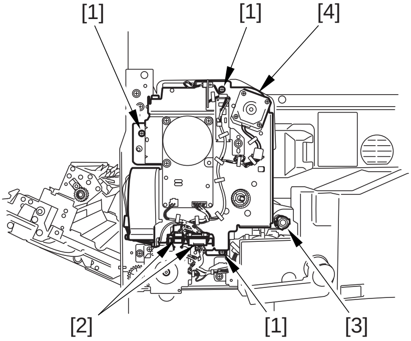
F-9-50

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



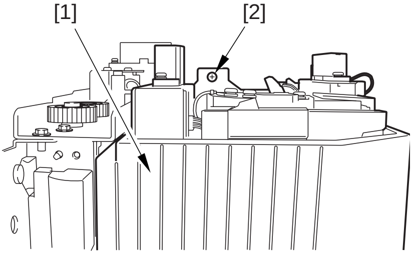
F-9-51

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



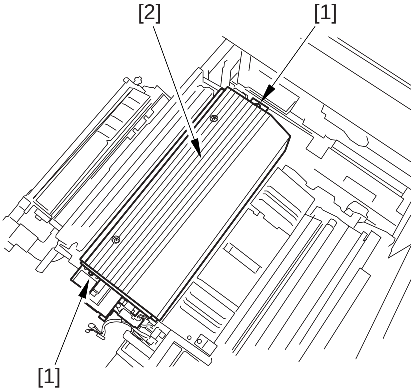
F-9-52

7) Remove the screw [2] found at the rear of the fixing assembly [1].



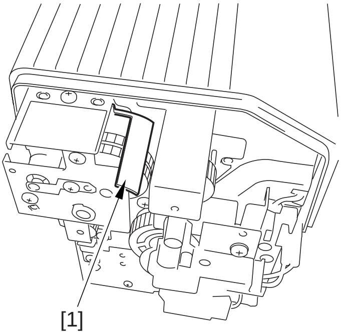
F-9-53

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-54

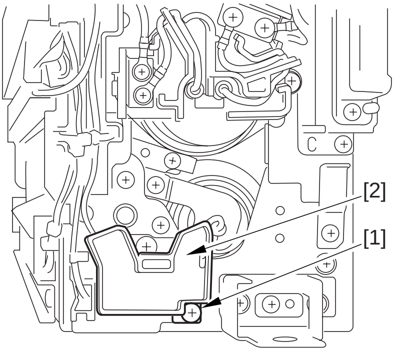
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-55

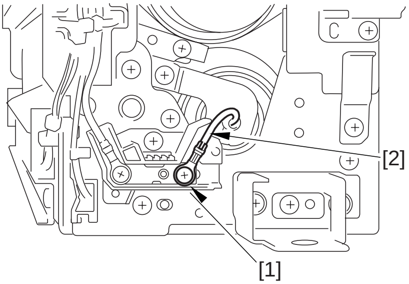
9.6.3.2 Removing the Fixing Lower Heater

1) Remove the screw [1], and detach the heater terminal cover [2].



F-9-56

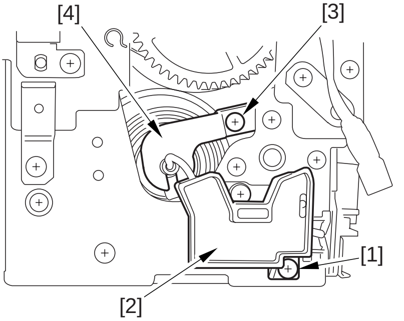
2) Remove the screw [1], and free the heater harness [2].



F-9-57

3) Remove the screw [1], and detach the heater terminal cover [2].

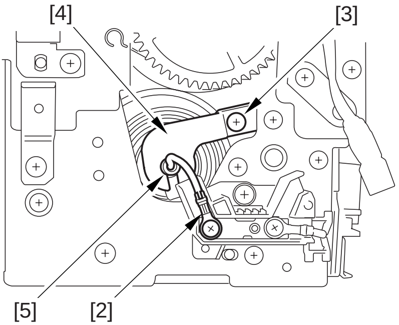
4) Remove the screw [3], and detach the heater retainer [4].



F-9-58

5) Remove the screw [1], and free the heater harness [2].

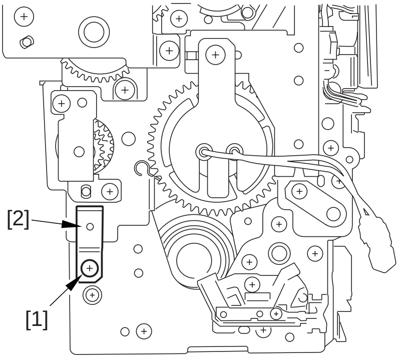
6) Remove the screw [3], and detach the heater retainer [4]; then, pull out the heater [5].



F-9-59

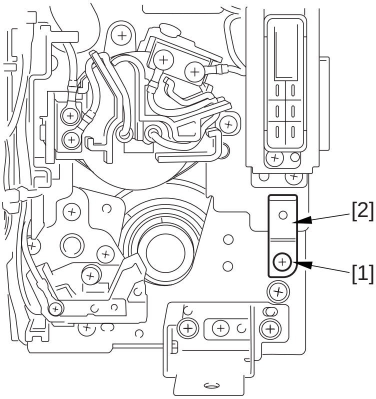
9.6.3.3 Removing the Pressure Roller

1) Remove the screw [1], and detach the pin [2] while pushing down on the fixing assembly



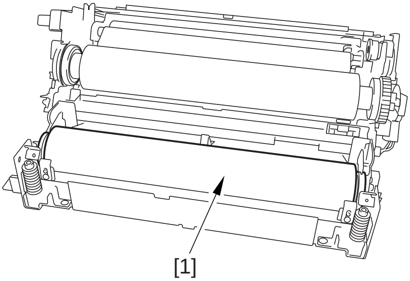
F-9-60

2) Remove the screw [1], and pull out the pin; then, open the fixing assembly.



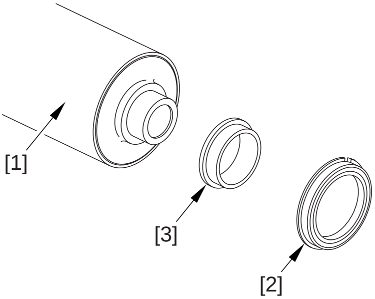
F-9-61

3) Lift the pressure roller [1] together with the bearing and the bush to detach.



F-9-62

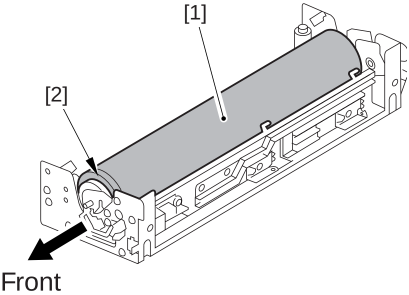
4) Detach the bearing [2] and the bush [3] from both ends of the pressure roller [1].



F-9-63

9.6.3.4 Points to Note When Mounting the Pressure Roller

Be sure to mount the pressure roller [1] so that the lot number [2] found on its edge is found toward the front of the machine.



F-9-64

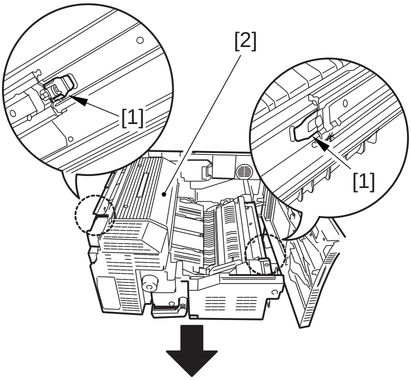
9.6.4 External Heat Roller

9.6.4.1 Removing the Fixing Assembly

1) Open the front cover.

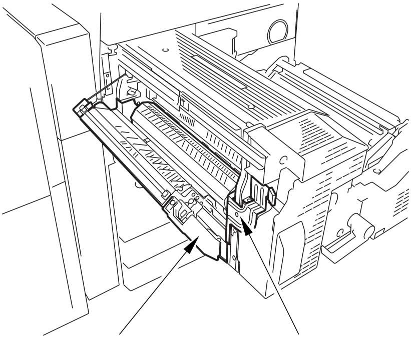
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



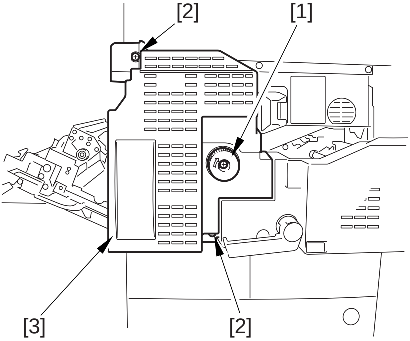
F-9-65

4) Open the reversal delivery cover [1] and the middle cover [2].



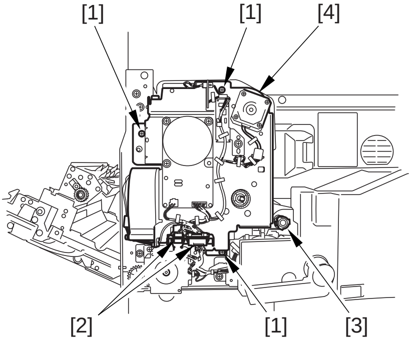
F-9-66

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



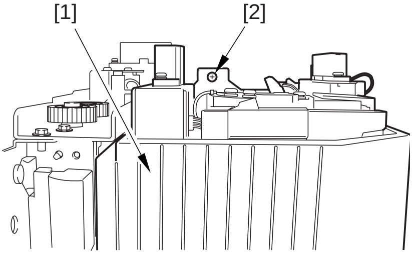
F-9-67

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



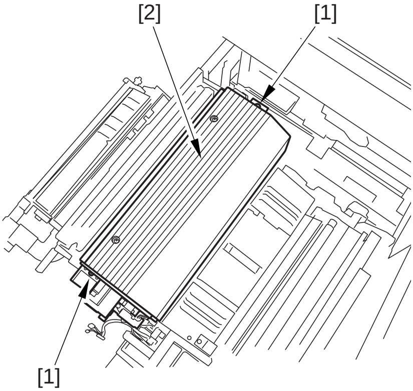
F-9-68

7) Remove the screw [2] found at the rear of the fixing assembly [1].



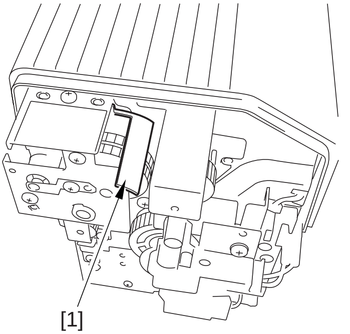
F-9-69

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-70

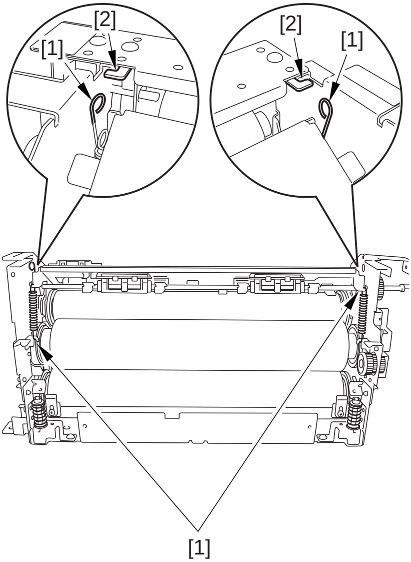
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-71

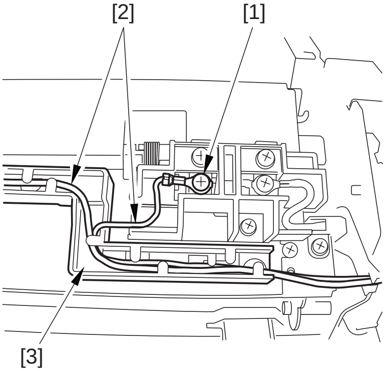
9.6.4.2 Removing the Outside Heating Roller Heater

1) Engage the ends of the 2 springs [1] on the hooks [2] of the side plate.



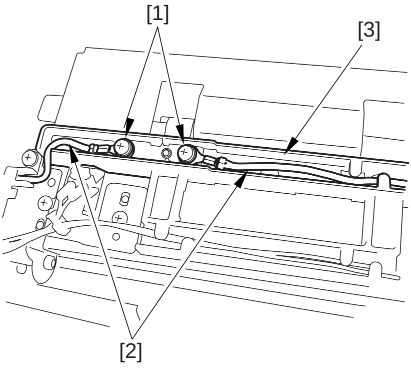
F-9-72

2) Disconnect the connector [1], and free the harness [2] from the 2 wire saddles [3].



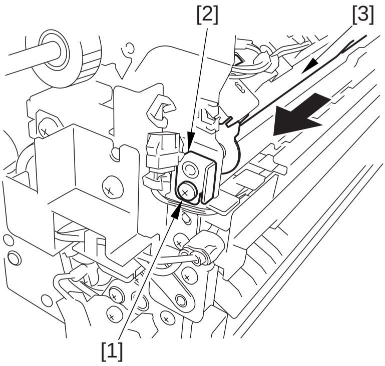
F-9-73

3) Remove the 2 screws [1], and free the 2 heater harnesses [2] from the wire guide [3].



F-9-74

4) Remove the screw [1], and pull out the pin [2]; then, pull out the outside heating roller [3].

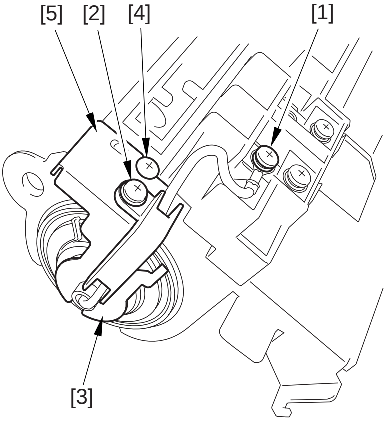


F-9-75

5) Remove the screw [1].

6) Remove the screw [2], and detach the wire guide [3].

7) Remove the screw [4], and detach the heater retainer [5].

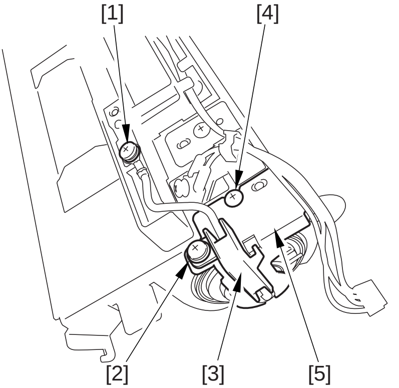


F-9-76

8) Remove the screw [1].

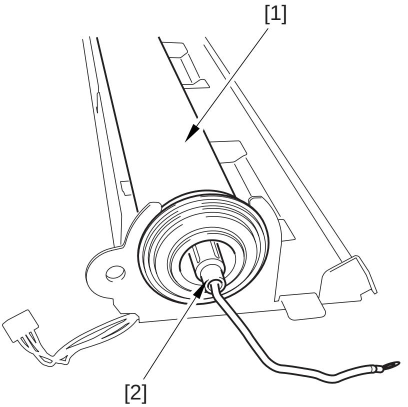
9) Remove the screw [2], and detach the wire guide [3].

10) Remove the screw[4], and detach the heater retainer [5].



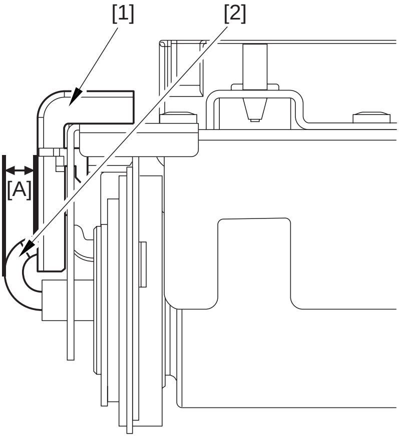
F-9-77

11) Pull the heater [2] out of the outside heating roller [1].



F-9-78

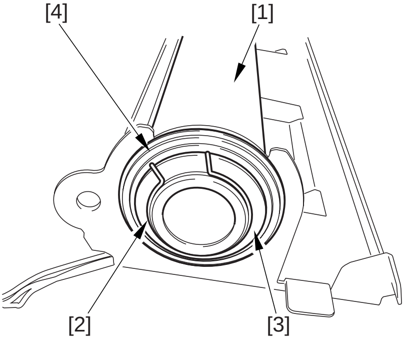
⚠ When mounting the outside heating roller heater, be sure that the length A of the heater cable [2] sticking out the heater holder [1] is no more than 4 mm.



F-9-79

9.6.4.3 Removing the Outside Heating Roller

1) Detach the ring [1], bush [2], and bearing [4] from both ends of the outside heating roller [1]; then, detach the outside heating roller.



F-9-80

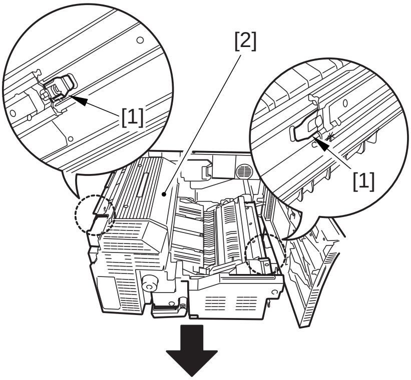
9.6.5 Fixing Thermistor (Upper)

9.6.5.1 Removing the Fixing Assembly

1) Open the front cover.

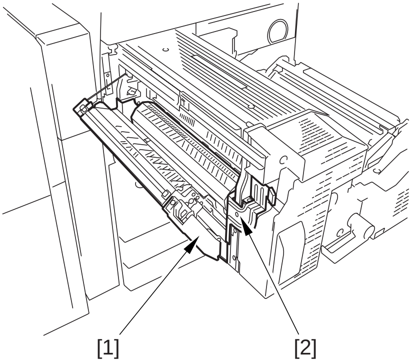
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



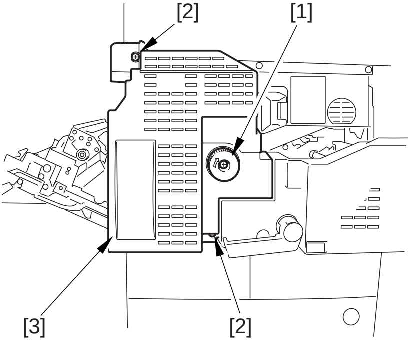
F-9-81

4) Open the reversal delivery cover [1] and the middle cover [2].



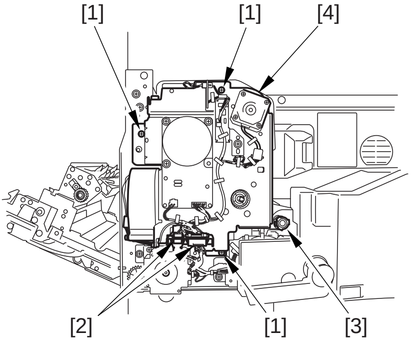
F-9-82

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



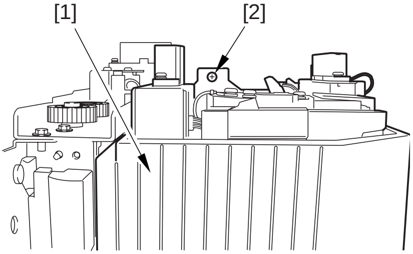
F-9-83

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



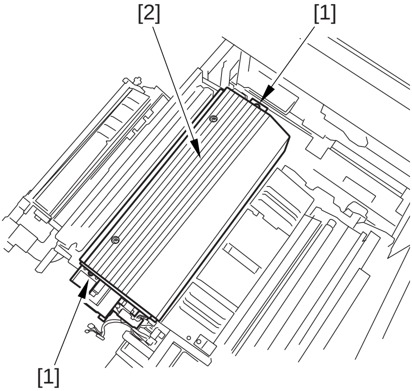
F-9-84

7) Remove the screw [2] found at the rear of the fixing assembly [1].



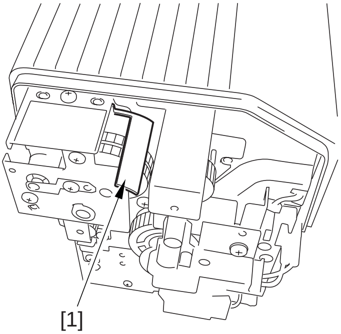
F-9-85

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-86

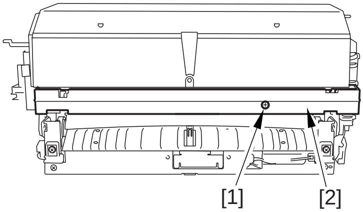
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-87

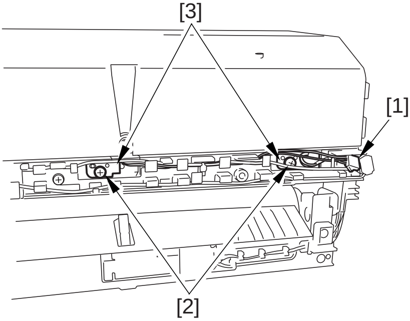
9.6.5.2 Removing the Fixing Upper Thermistor

1) Remove the screw [1], and detach the thermistor cover [2].



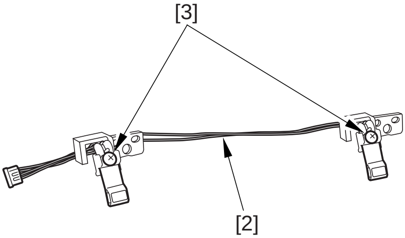
F-9-88

2) Disconnect the connector [1], and remove the 2 screws [2]; then, move the harness out of the way, and detach thermistor [3] together with the holder



F-9-89

3) Remove the 2 screws [1], and detach the thermistor [2].

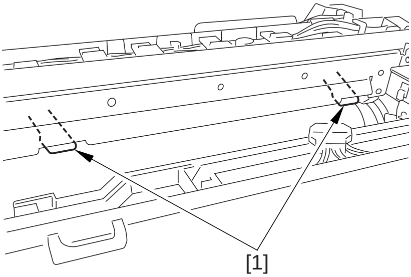


F-9-90

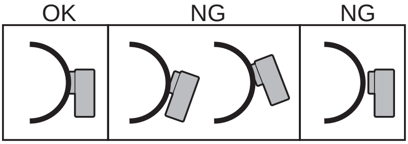
9.6.5.3 Points to Note When Mounting the Fixing Upper Thermistor

⚠After mounting the thermistor, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-9-91



F-9-92

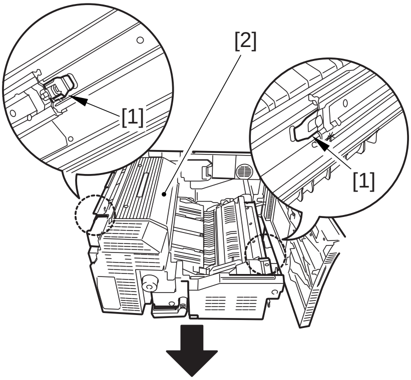
9.6.6 Fixing Thermistor (Lower)

9.6.6.1 Removing the Fixing Assembly

1) Open the front cover.

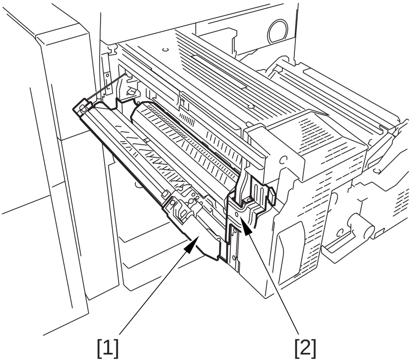
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



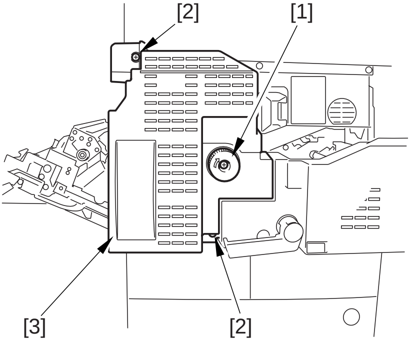
F-9-93

4) Open the reversal delivery cover [1] and the middle cover [2].



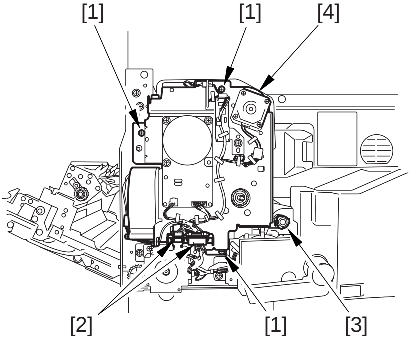
F-9-94

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



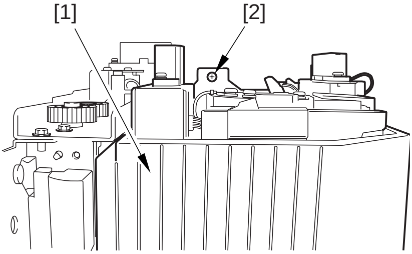
F-9-95

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



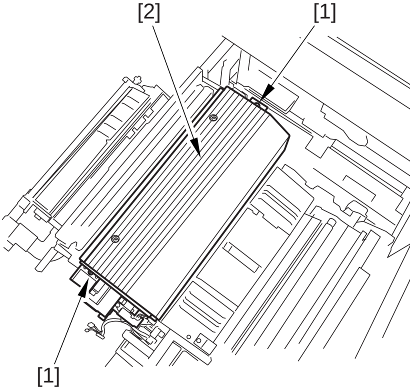
F-9-96

7) Remove the screw [2] found at the rear of the fixing assembly [1].



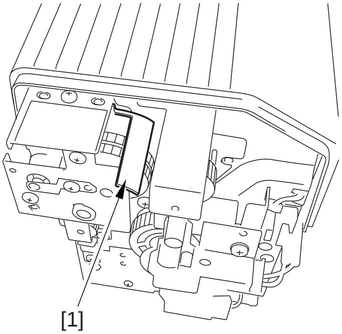
F-9-97

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-98

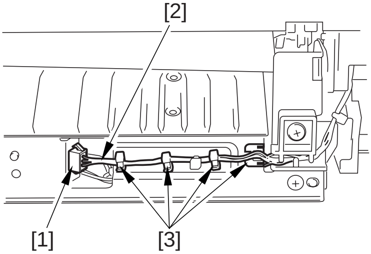
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-99

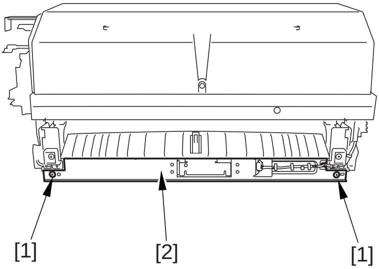
9.6.6.2 Removing the Fixing Lower Thermistor

1) Disconnect the connector [1], and free the harness [2] from the 4 wire saddles [3].



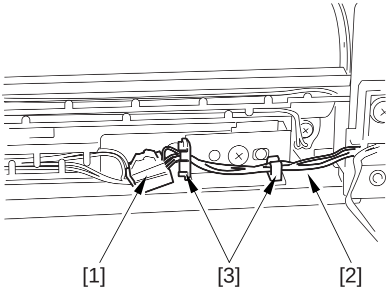
F-9-100

2) Remove the 2 screws [1], and detach the inlet guide [2].



F-9-101

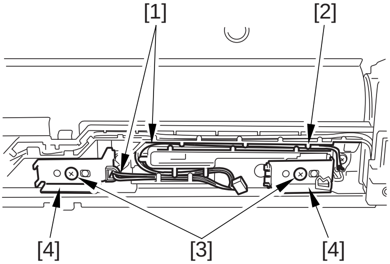
3) Disconnect the connector [1], and free the harness [2] from the 2 wire saddles [3].



F-9-102

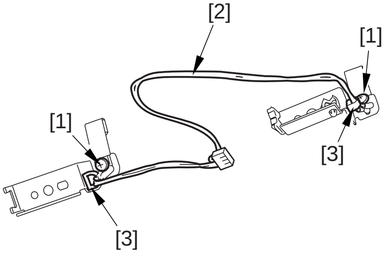
4) Free the harness [1] from the wire saddle [2].

5) Remove the 2 screws [3], and detach the 2 holders [4].



F-9-103

6) Remove the 2 screws [1], and free the harness [2] from the 2 wire saddles [3].

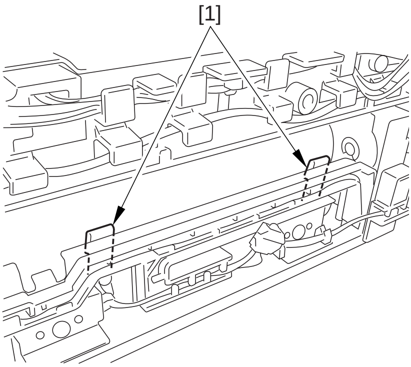


F-9-104

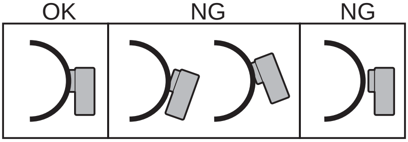
9.6.6.3 Points to Note When Mounting the Fixing Lower Thermistor

⚠After mounting the thermistor, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-9-105

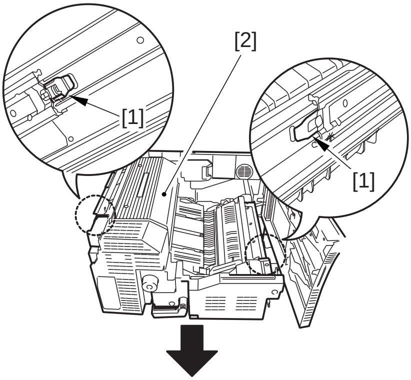


F-9-106

9.6.7 External Heat Thermistor

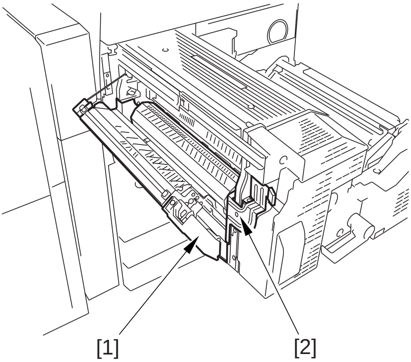
9.6.7.1 Removing the Fixing Assembly

1) Open the front cover.
2) Slide out the fixing/feeding assembly.
3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



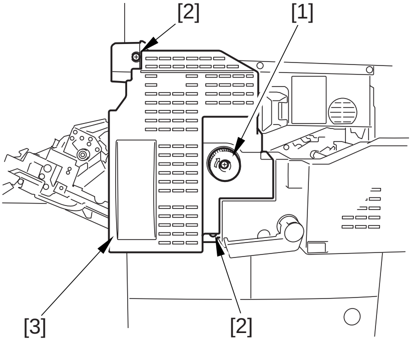
F-9-107

4) Open the reversal delivery cover [1] and the middle cover [2].



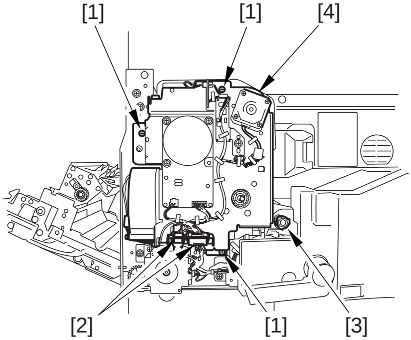
F-9-108

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



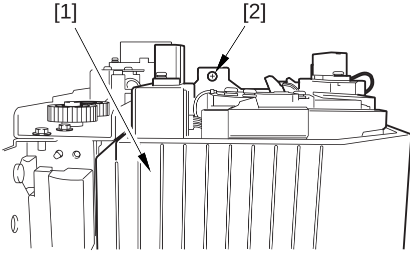
F-9-109

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



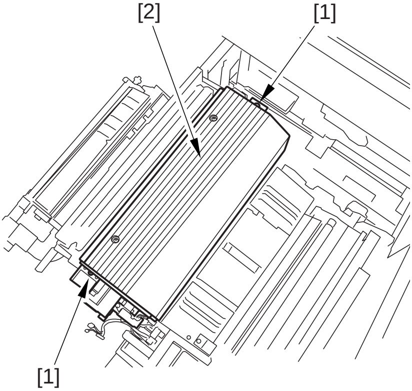
F-9-110

7) Remove the screw [2] found at the rear of the fixing assembly [1].



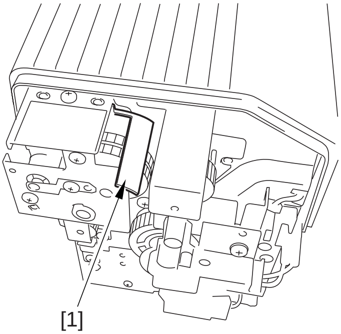
F-9-111

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-112

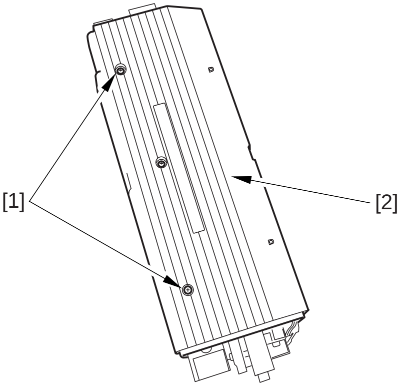
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-113

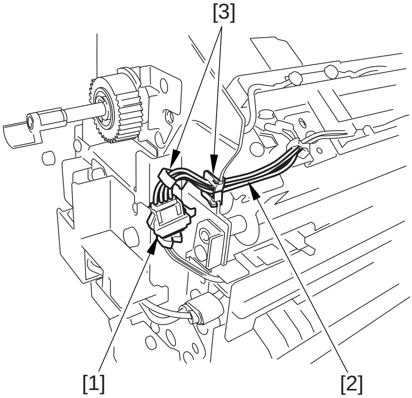
9.6.7.2 Removing the Outside Heating Roller Thermistor

1) Remove the 2 screws [1], and detach the fixing upper cover [2].



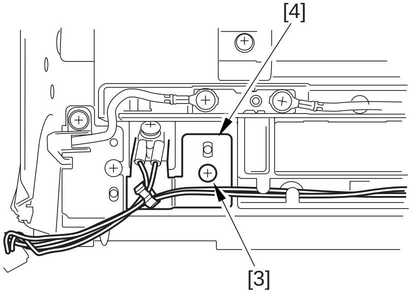
F-9-114

2) Disconnect the connector [1], and free the harness [2] from the wire saddle[3].



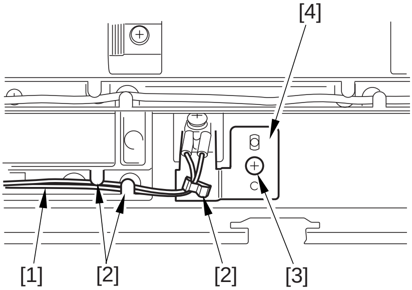
F-9-115

3) Free the harness [1] from the wire saddle [2]; then, remove the screw [3], and detach the thermistor mounting plate [4].



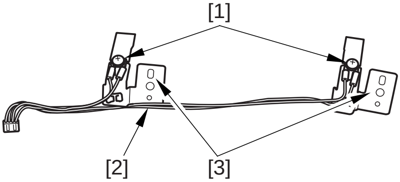
F-9-116

4) Free the harness [1] from the wire saddle [2]; then, remove the screw [3], and detach the thermistor mounting plate [4].



F-9-117

5) Remove the 2 screws [1], and detach the thermistor [2] from the thermistor mounting plate [3].

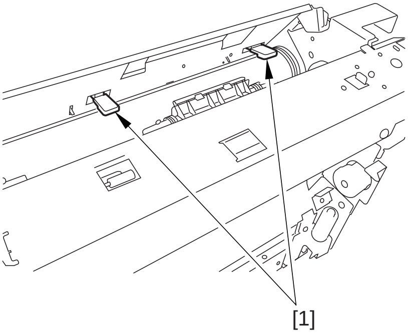


F-9-118

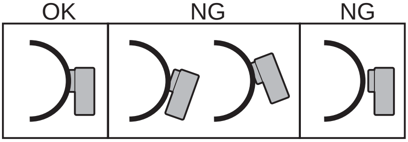
9.6.7.3 Points to Note When Mounting the External Heat Thermistor

⚠After mounting the thermistor, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-9-119



F-9-120

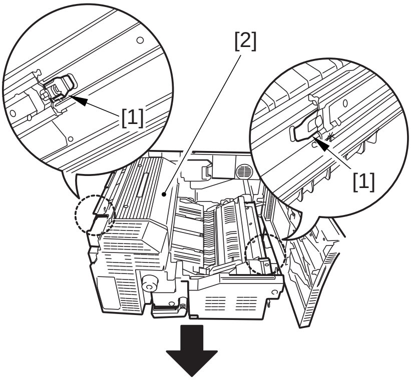
9.6.8 Fixing Thermal Switch

9.6.8.1 Removing the Fixing Assembly

1) Open the front cover.

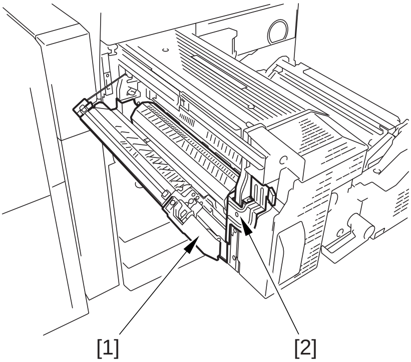
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



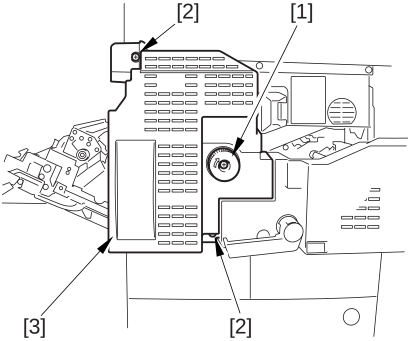
F-9-121

4) Open the reversal delivery cover [1] and the middle cover [2].



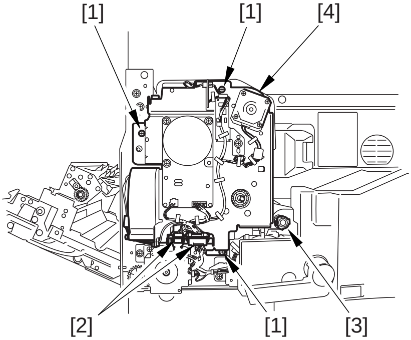
F-9-122

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



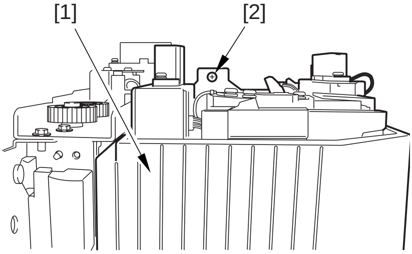
F-9-123

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



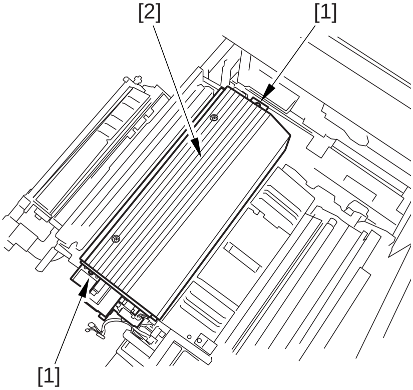
F-9-124

7) Remove the screw [2] found at the rear of the fixing assembly [1].



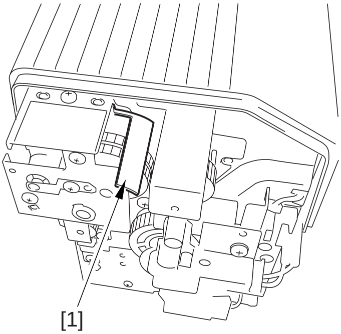
F-9-125

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-126

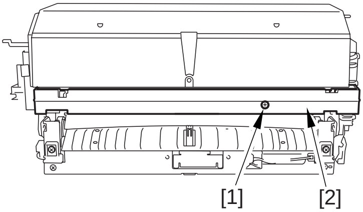
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-127

9.6.8.2 Removing the Fixing Thermal Switch

1) Remove the screw [1], and detach the thermistor cover [2].

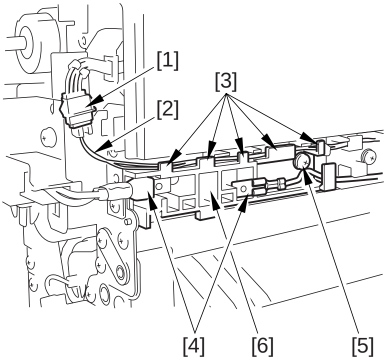


F-9-128

2) Disconnect the connector [1], and free the harness [2] from the wire guide [3].

3) Remove the 2 fastons [4].

4) Remove the screw [5], and detach the thermal switch [6].

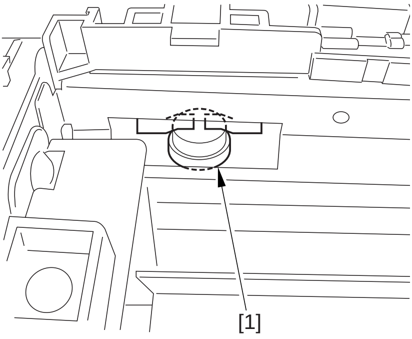


F-9-129

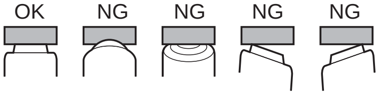
9.6.8.3 Points to Note When Mounting the Fixing Thermal Switch

⚠ After mounting the thermal switch, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-9-130



F-9-131

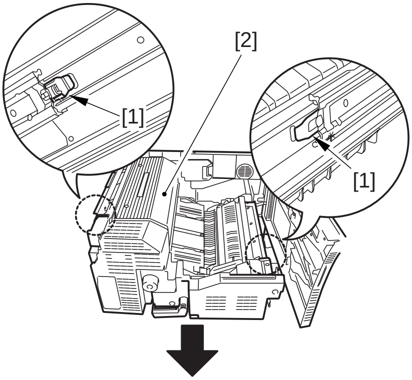
9.6.9 Fixing Locking Thermal Switch

9.6.9.1 Removing the Fixing Assembly

1) Open the front cover.

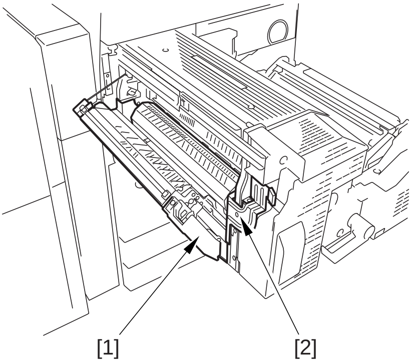
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



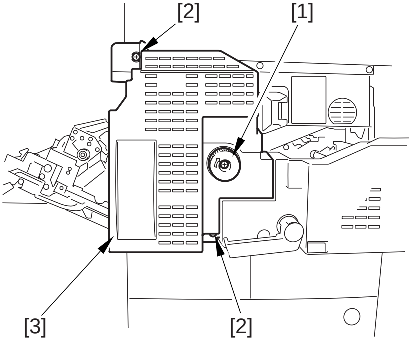
F-9-132

4) Open the reversal delivery cover [1] and the middle cover [2].



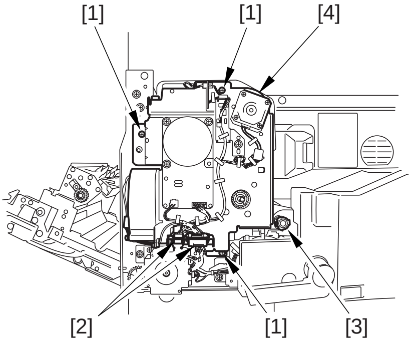
F-9-133

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



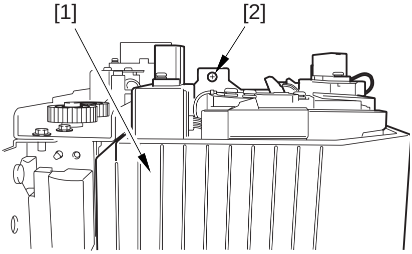
F-9-134

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



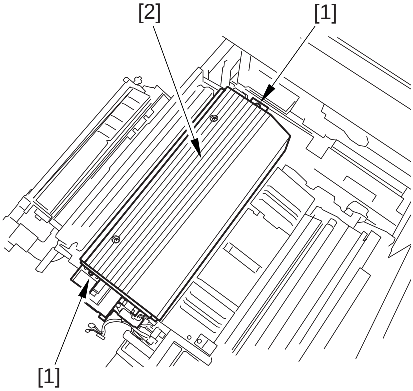
F-9-135

7) Remove the screw [2] found at the rear of the fixing assembly [1].



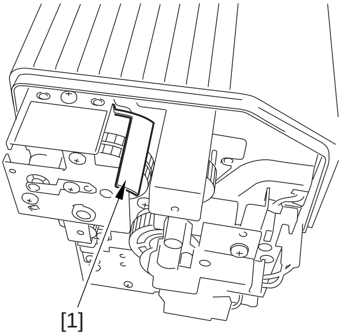
F-9-136

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-137

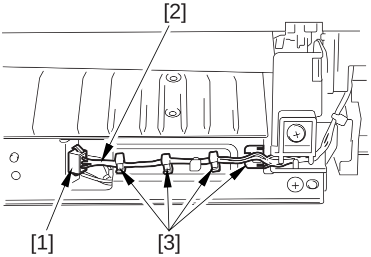
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-138

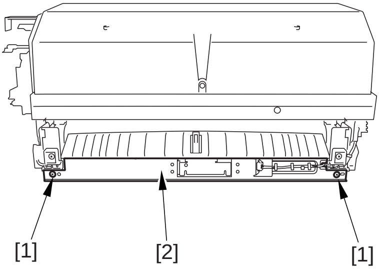
9.6.9.2 Removing the Fixing Pressure Thermal Switch

1) Disconnect the connector [1], and free the harness [2] from the 4 wire saddles [3].



F-9-139

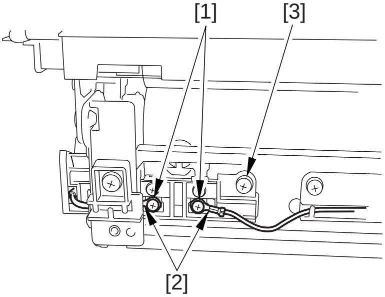
2) Remove the 2 screws [1], and detach the inlet unit [2].



F-9-140

3) Remove the 2 screws [1], and move the 2 heater harnesses [2] out of the way.

4) Remove the screw [3], and detach the thermal switch.

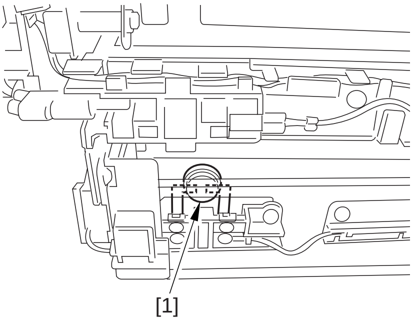


F-9-141

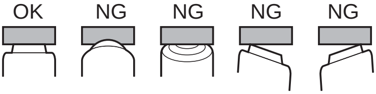
9.6.9.3 Points to Note When Mounting the Fixing Pressure Thermal Switch

⚠ After mounting the thermal switch (before mounting the inlet guide), check to make sure o the following:

The surface of the thermal switch [1] must be parallel to the pressure roller. (Be sure to check it by shining the thermal switch by a pen light.) if not, re-mount it.



F-9-142



F-9-143

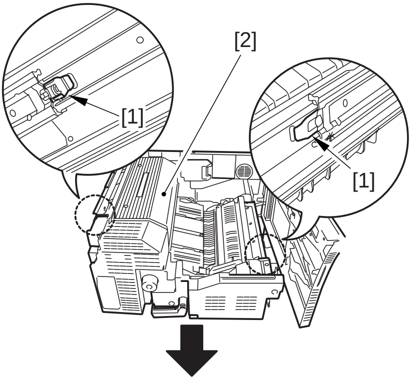
9.6.10 Thermal Switch

9.6.10.1 Removing the Fixing Assembly

1) Open the front cover.

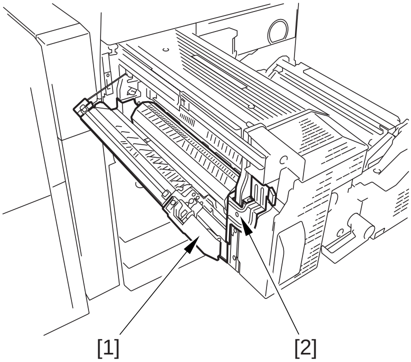
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



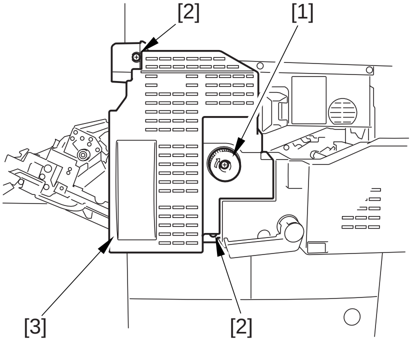
F-9-144

4) Open the reversal delivery cover [1] and the middle cover [2].



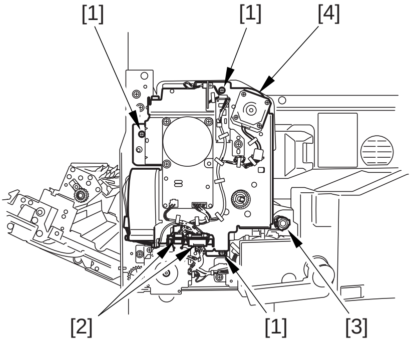
F-9-145

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



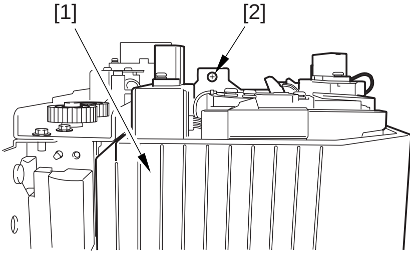
F-9-146

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



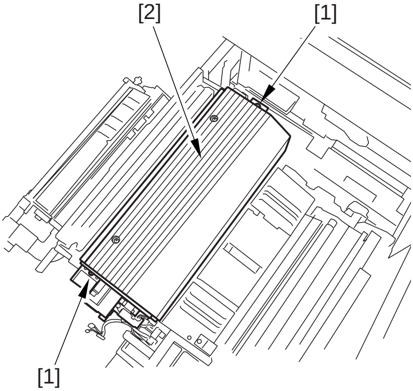
F-9-147

7) Remove the screw [2] found at the rear of the fixing assembly [1].



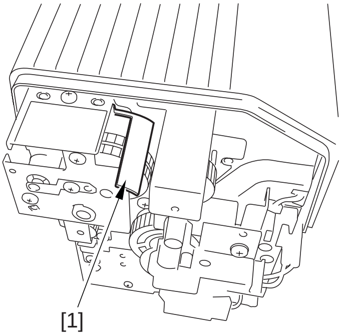
F-9-148

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-149

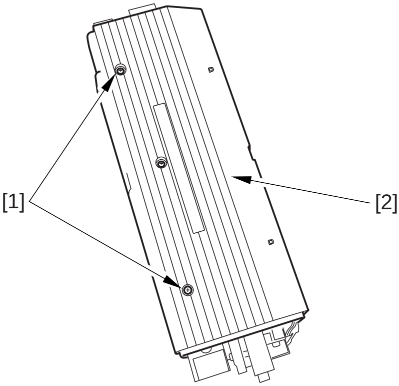
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-150

9.6.10.2 Removing the Outside Heating Roller Thermal Switch

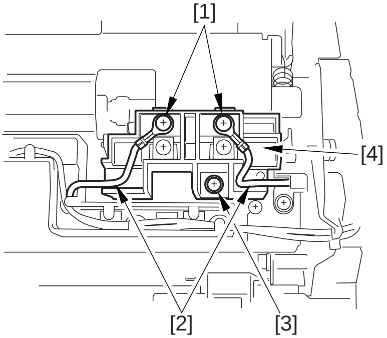
1) Remove the 2 screws [1], and detach the fixing upper cover [2].



F-9-151

2) Remove the 2 screws [1], and free the 2 heater harnesses [2].

3) Remove the screw [3], and detach the thermal switch.



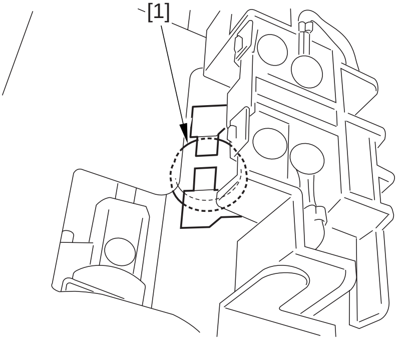
F-9-152

9.6.10.3 Points to Note When Mounting the Outside Heating Roller Thermal Switch

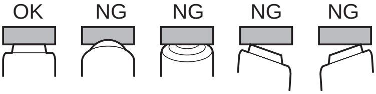
⚠ After mounting the thermal switch,

check to be sure of the following:

The surface of the thermal switch [1] must be parallel to the outside heating roller. (Be sure to shine the thermal witch switch a pen light.) If not, re-mount it.



F-9-153

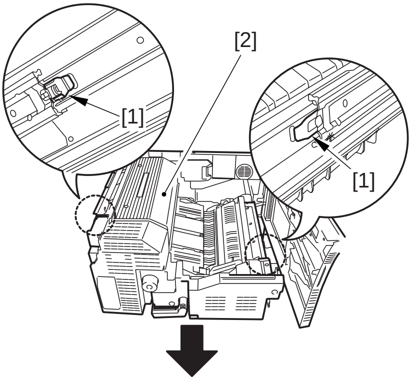


F-9-154

9.6.11 Upper Fixing Heater

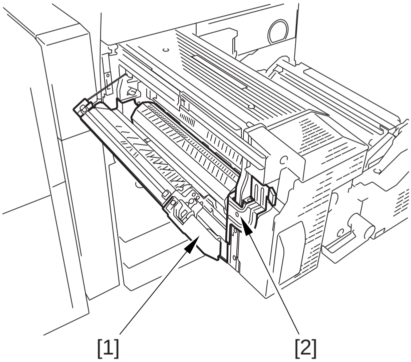
9.6.11.1 Removing the Fixing Assembly

1) Open the front cover.
2) Slide out the fixing/feeding assembly.
3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



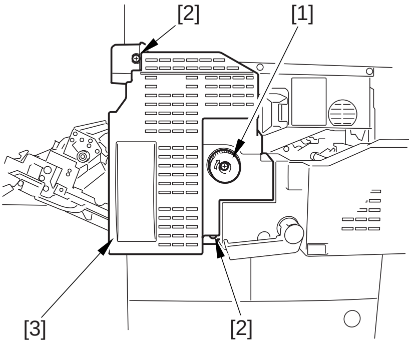
F-9-155

4) Open the reversal delivery cover [1] and the middle cover [2].



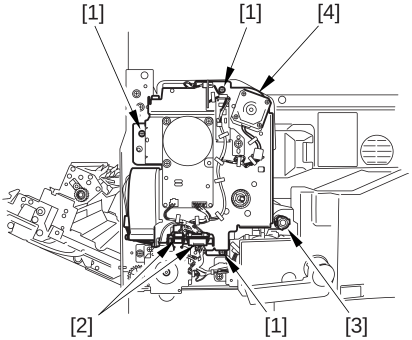
F-9-156

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



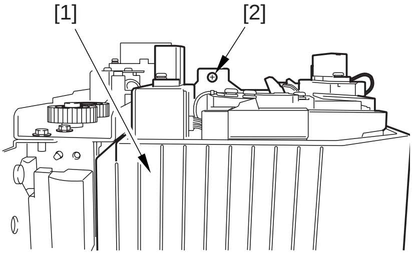
F-9-157

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



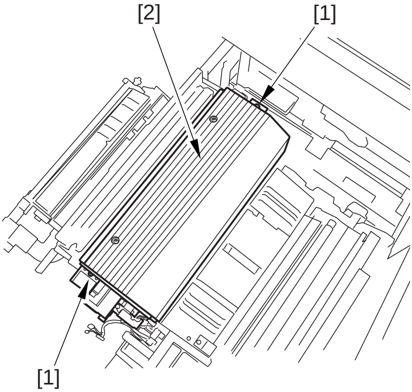
F-9-158

7) Remove the screw [2] found at the rear of the fixing assembly [1].



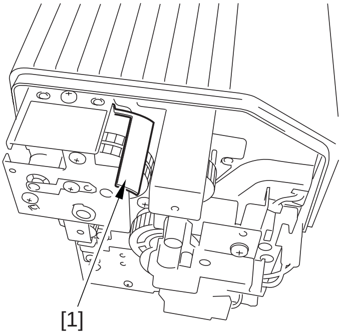
F-9-159

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-160

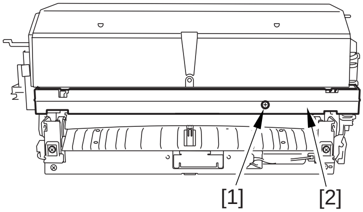
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-161

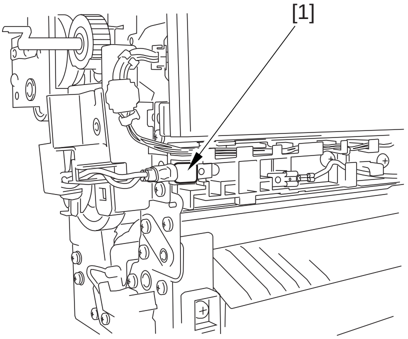
9.6.11.2 Removing the Fixing Upper Heater

1) Remove the screw [1], and shift the thermistor cover [2] to detach.



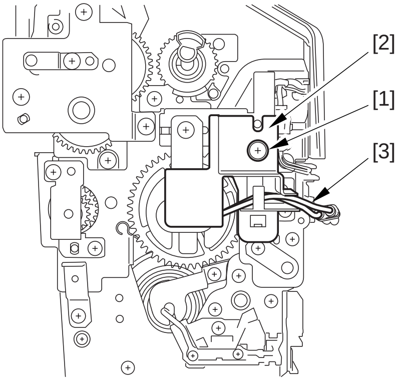
F-9-162

2) Remove the faston [1] of the heater.



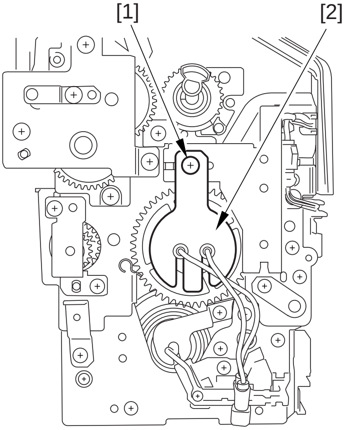
F-9-163

3) Remove the screw [1], and detach the heater cover [2] while moving the heater harness [3] out of the way.



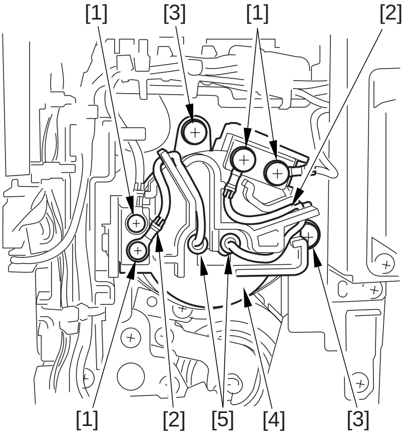
F-9-164

4) Remove the screw [1], and detach the heater retainer [2].



F-9-165

5) Remove the 4 screws [1], and move the heater harness [2] out of the way. Remove the 2 screws [3], and detach the heater cover [4]. Then, detach the heater [5].



F-9-166

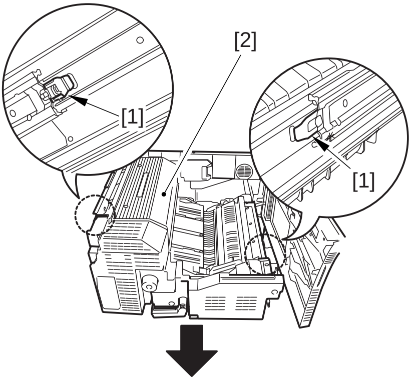
9.6.12 Lower Fixing Roller

9.6.12.1 Removing the Fixing Assembly

1) Open the front cover.

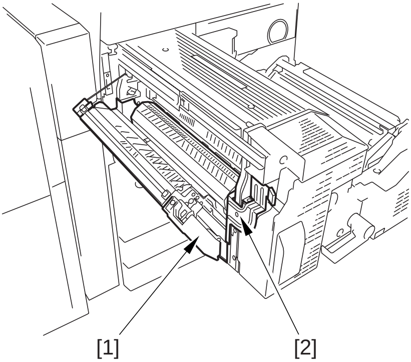
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



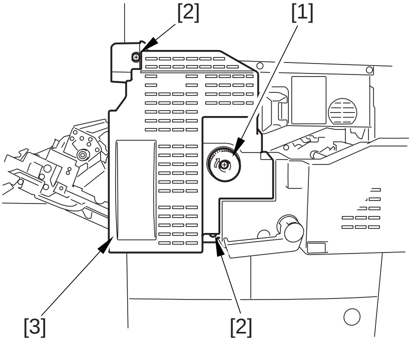
F-9-167

4) Open the reversal delivery cover [1] and the middle cover [2].



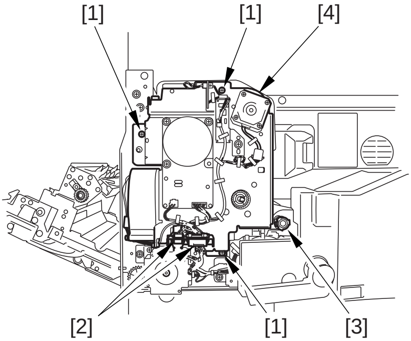
F-9-168

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



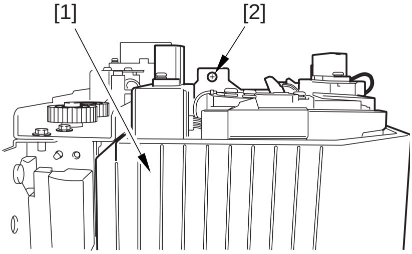
F-9-169

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



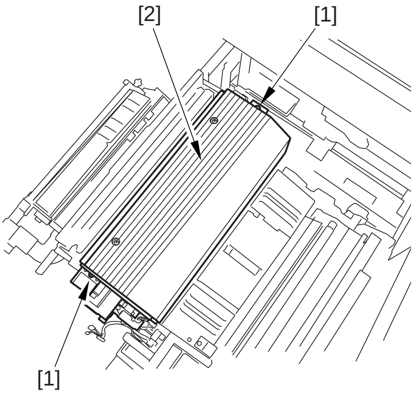
F-9-170

7) Remove the screw [2] found at the rear of the fixing assembly [1].



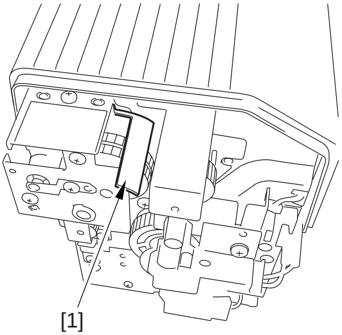
F-9-171

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-172

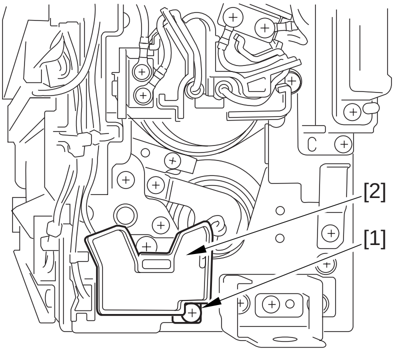
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-173

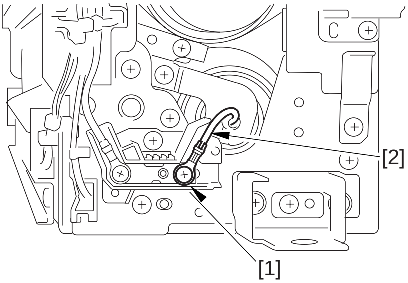
9.6.12.2 Removing the Fixing Lower Heater

1) Remove the screw [1], and detach the heater terminal cover [2].



F-9-174

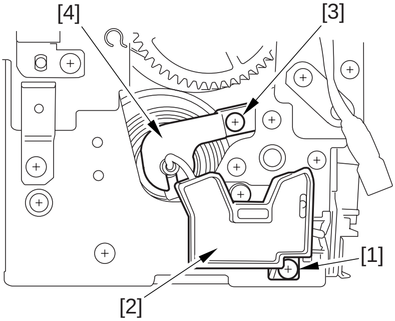
2) Remove the screw [1], and free the heater harness [2].



F-9-175

3) Remove the screw [1], and detach the heater terminal cover [2].

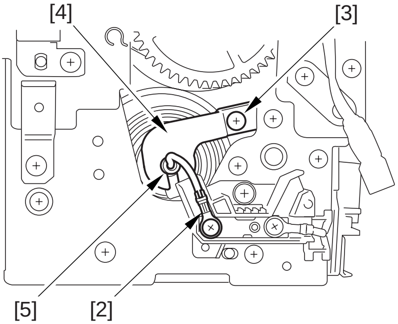
4) Remove the screw [3], and detach the heater retainer [4].



F-9-176

5) Remove the screw [1], and free the heater harness [2].

6) Remove the screw [3], and detach the heater retainer [4]; then, pull out the heater [5].



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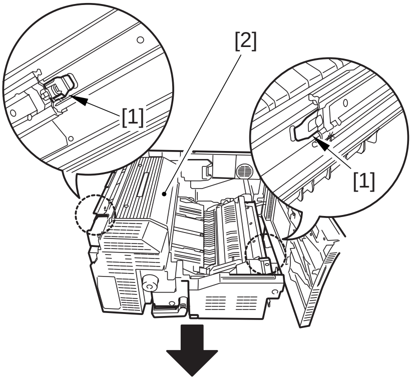
9.6.13 Fixing Locking Heater

9.6.13.1 Removing the Fixing Assembly

1) Open the front cover.

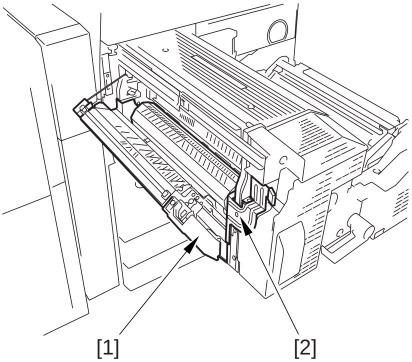
2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



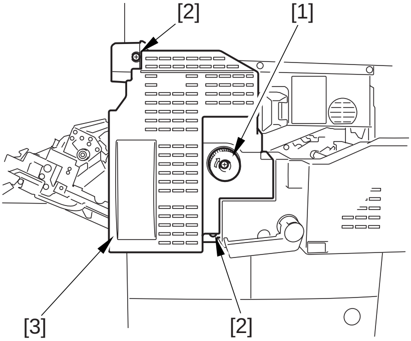
F-9-178

4) Open the reversal delivery cover [1] and the middle cover [2].



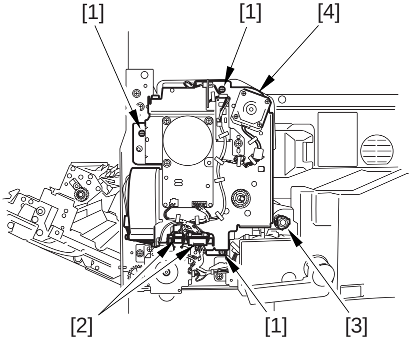
F-9-179

5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



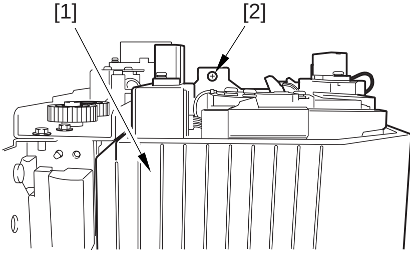
F-9-180

6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



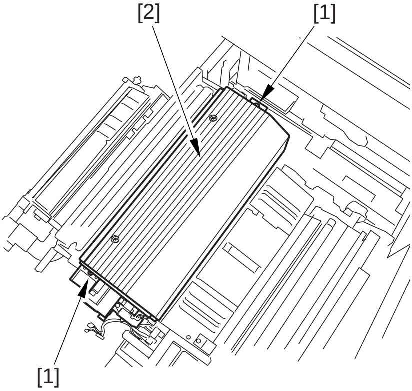
F-9-181

7) Remove the screw [2] found at the rear of the fixing assembly [1].



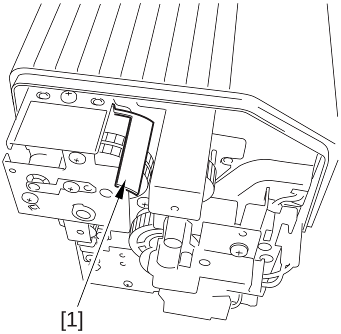
F-9-182

8) Holding the 2 grips [1], detach the fixing assembly [2].



F-9-183

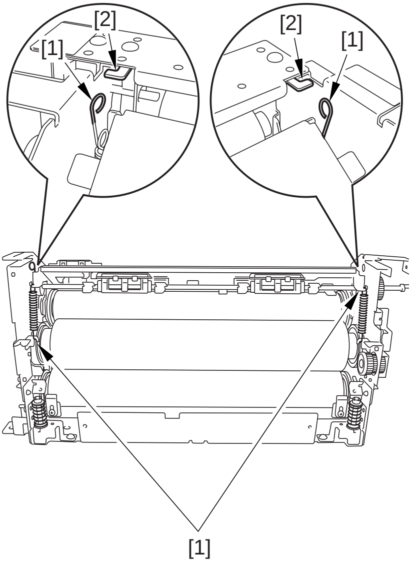
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



F-9-184

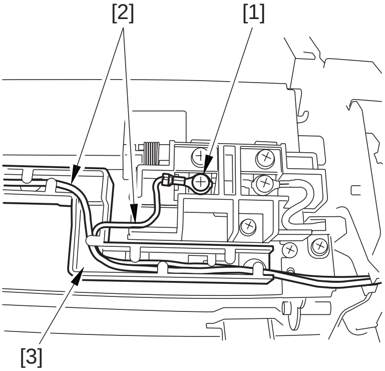
9.6.13.2 Removing the Outside Heating Roller Heater

1) Engage the ends of the 2 springs [1] on the hooks [2] of the side plate.



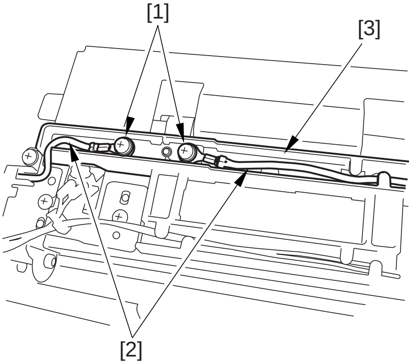
F-9-185

2) Disconnect the connector [1], and free the harness [2] from the 2 wire saddles [3].



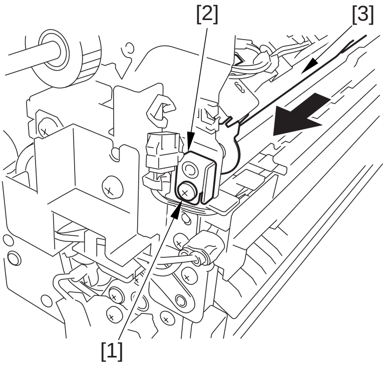
F-9-186

3) Remove the 2 screws [1], and free the 2 heater harnesses [2] from the wire guide [3].



F-9-187

4) Remove the screw [1], and pull out the pin [2]; then, pull out the outside heating roller [3].

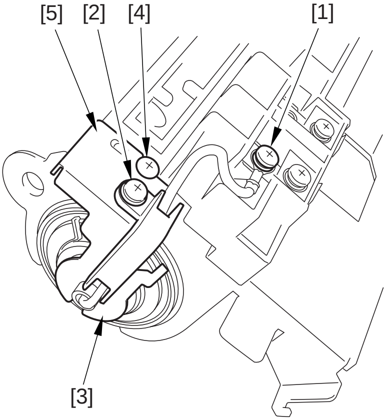


F-9-188

5) Remove the screw [1].

6) Remove the screw [2], and detach the wire guide [3].

7) Remove the screw [4], and detach the heater retainer [5].

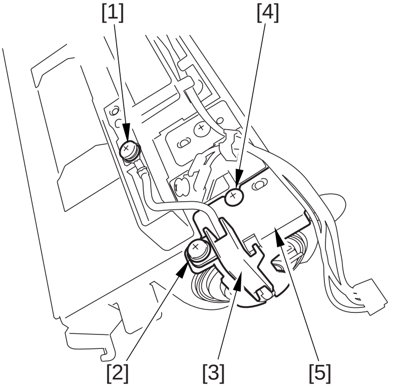


F-9-189

8) Remove the screw [1].

9) Remove the screw [2], and detach the wire guide [3].

10) Remove the screw[4], and detach the heater retainer [5].



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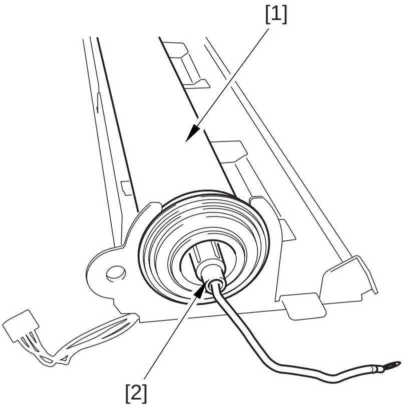
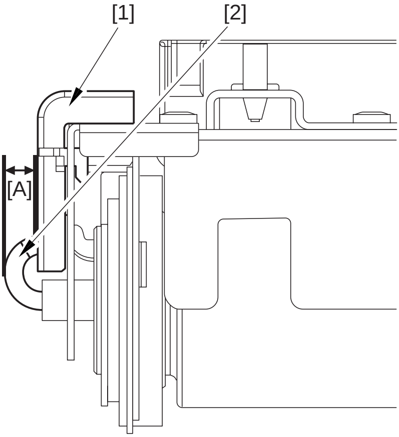
11) Pull the heater [2] out of the outside heating roller [1].



F-9-191

⚠ When mounting the outside heating roller heater, be sure that the length A of the heater cable [2] sticking out the heater holder [1] is no more than 4 mm.



F-9-192

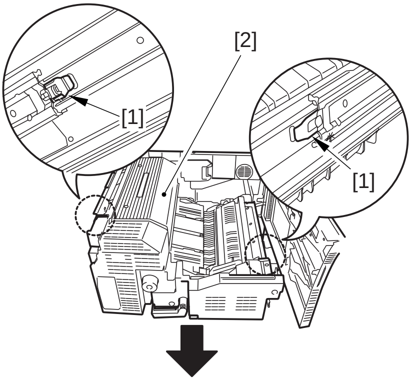
9.6.14 Fixing Web

9.6.14.1 Removing the Fixing Assembly

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

3) Push the leaf springs [1] found at the left and right to slide farther out the fixing/feeding assembly [2].



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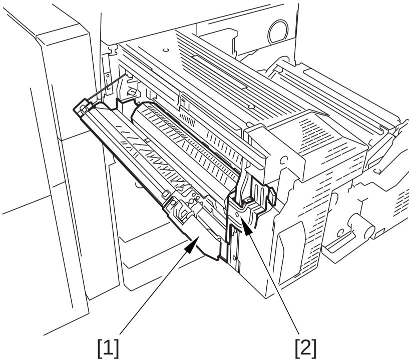
4) Open the reversal delivery cover [1] and the middle cover [2].



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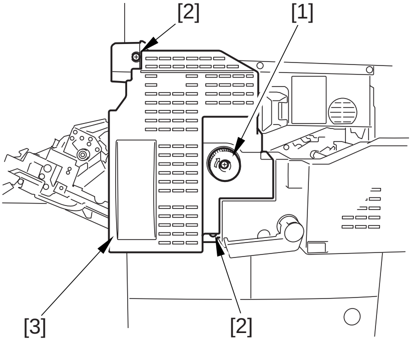
5) Remove the screw [1] and the 2 screws [2]; then, detach the fixing front cover [3].



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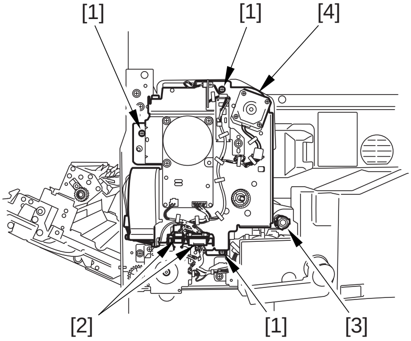
6) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



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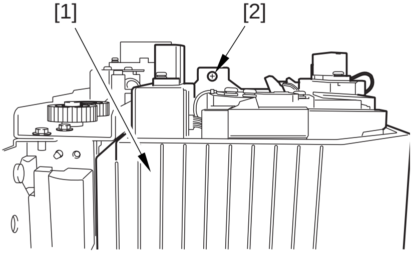
7) Remove the screw [2] found at the rear of the fixing assembly [1].



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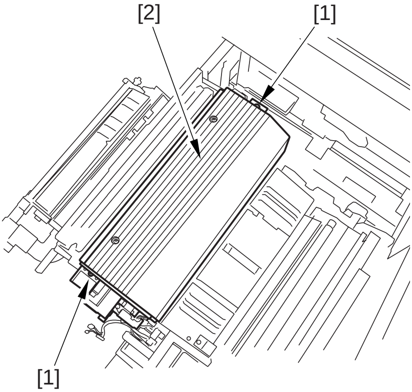
8) Holding the 2 grips [1], detach the fixing assembly [2].



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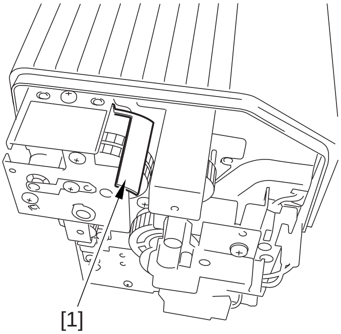
⚠ When lifting the fixing assembly, be sure to take care not to touch the web length detecting arm [1] so that the arm will be free of damage.



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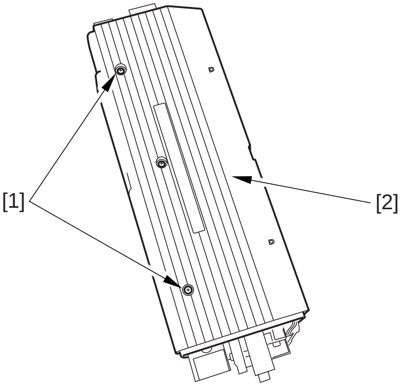
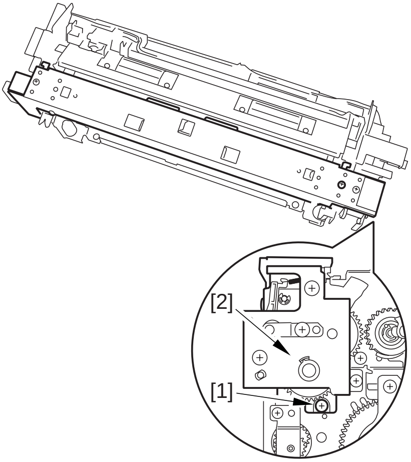
9.6.14.2 Removing the Fixing Web Unit

1) Remove the 2 screws [1], and detach the fixing upper cover [2].



F-9-200

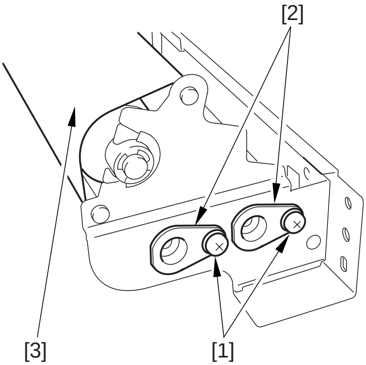
2) Remove the 1 screws [1], and detach the fixing web unit [2].



F-9-201

9.6.14.3 Removing the Fixing Web

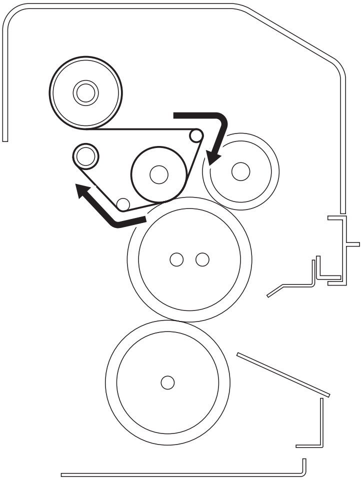
1) Remove the 2 screws [1], and detach the 2 fixings [2]; then, detach the fixing web [3].



F-9-202

9.6.14.4 Attaching the Fixing Web

Attach the fixing web as shown:



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9.6.14.5 When Replacing the Fixing Web

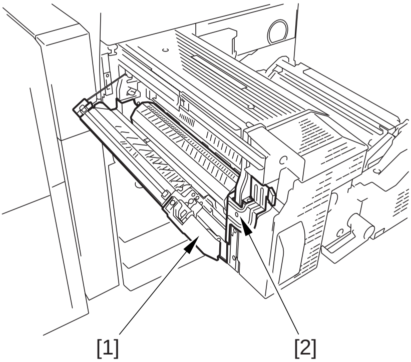
1. After attaching the web, take up its slack so that there will be no slack when the web unit is fitted in the fixing assembly.
2. After replacing the web, reset the readings of the following service mode items:

COPIER>COUNTER>MISC>FIX-WEB
COPIER>COUNTER>DRBL-1>FX-WEB

9.6.15 Fixing Motor

9.6.15.1 Removing the Fixing Front Cover

1) Open the font cover.
2) Slide out the fixing/feeding assembly.
3) Open the re reversal delivery cover [1] and the middle cover [2].



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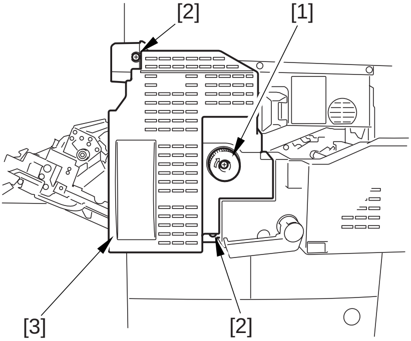
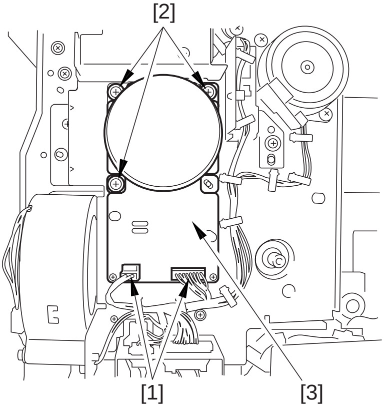
5) Remove the knob [1] and the 2 screws [2]; then, detach the fixing front cover [3].



F-9-205

9.6.15.2 Removing the Fixing Motor

1) Disconnect the 2 connectors [1], and remove the 3 screws [2]; then, detach the fixing motor [3].



F-9-206

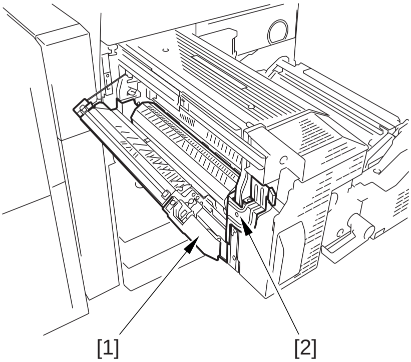
9.6.16 External Heater Shift Motor

9.6.16.1 Removing the Fixing Front Cover

1) Open the font cover.

2) Slide out the fixing/feeding assembly.

3) Open the re reversal delivery cover [1] and the middle cover [2].



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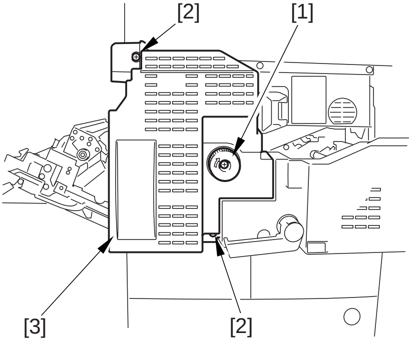
5) Remove the knob [1] and the 2 screws [2]; then, detach the fixing front cover [3].



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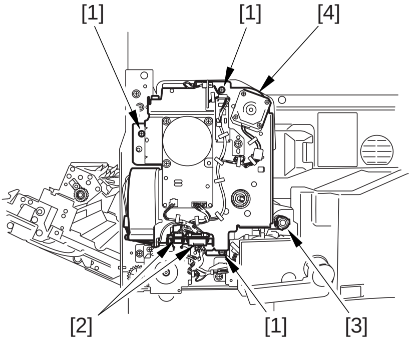
9.6.16.2 Removing the Outside Heating Roller Shift Motor

1) Remove the 3 screws [1], and disconnect the 3 connectors [2]; then, after shifting the timing belt [3] to the front, detach it together with the fixing motor base [4].



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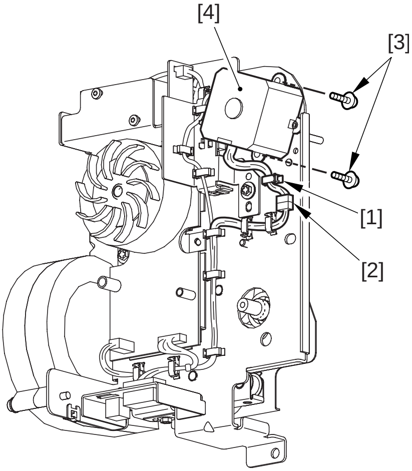
2) Free the harness from the cable guide [1]; then, disconnect the connector [2].

3) Remove the screw [3], and detach the outside heating roller shift motor [4].



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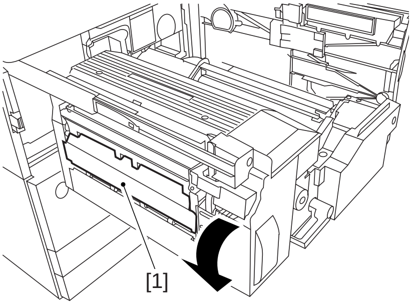
9.6.17 Upper Separation Claw

9.6.17.1 Removing the Delivery Upper Separation Claw

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

3) Open the reversal delivery cover.



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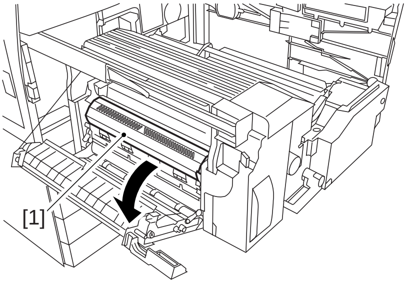
4) Open the middle cover.



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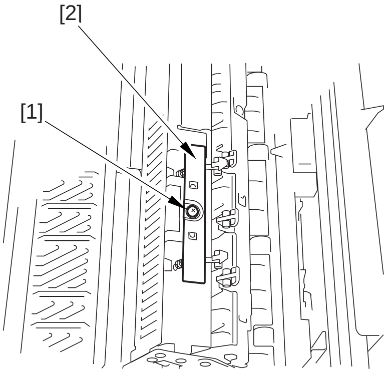
5) Remove the screw [1], and detach the leaf spring [2].



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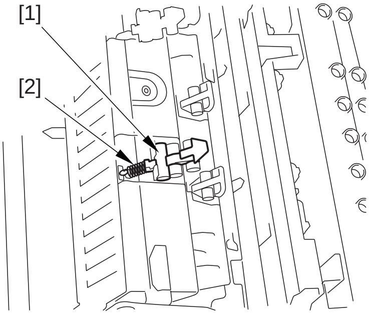
6) Turn the separation claw [1] in the direction of the arrow; then, free the hook of the spring [2] to detach it in upward direction.



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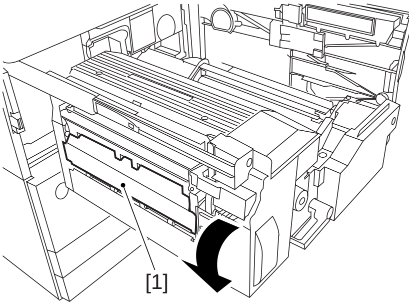
9.6.18 Lower Separation Claw

9.6.18.1 Removing the Delivery Lower Separation Claw

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

3) Open the reversal delivery cover.



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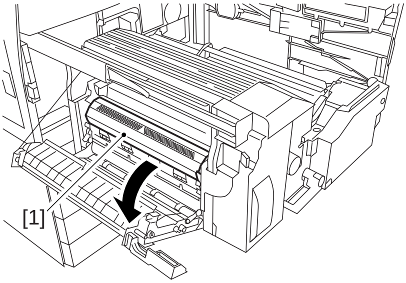
4) Open the middle cover.



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5) Detach the spring [1] from the rear of the delivery assembly.

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Externals
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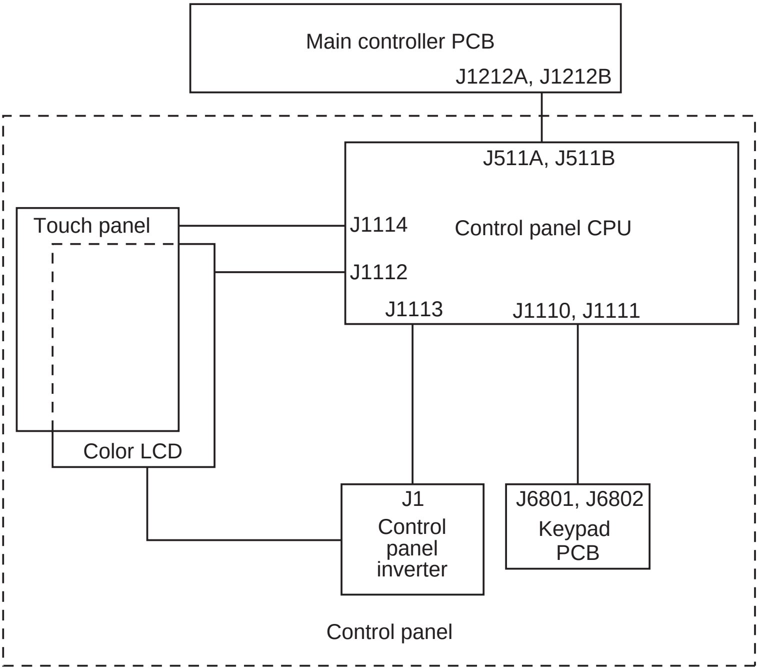
10.1 Control Panel

10.1.1 Overview

The machine' s control panel consists of PCBs, LCD, and touch panel as shown below, and its functions include the following:

- LCD display
- contrast adjustment
- touch switch input processing
- hard key input processing


Main controller PCB
J1212A, J1212B
J511A, J511B
Control panel CPU
J1114
J1112
J1113
J1110, J1111
Touch panel
Color LCD
J1
Control panel inverter
J6801, J6802
Keypad PCB
Control panel

F-10-1

10.1.2 LCD Processing

The CPU on the main controller PCB sends data (display information) to the control panel CPU PCB according to the instructions at such times as programmed.
The data goes through the control panel CPU PCB for display on the color LCD.

10.1.3 LCD Contrast Adjustment

The machine' s keypad PCB is equipped with a contrast adjustment volume (VR6801) to enable the user to adjust the contrast of the LCD.

10.1.4 Control Panel CPU

- Monitoring Key Inputs
  communicates the inputs made on the keypad or function keys to the CPU on the main controller PCB.
- Monitoring Touch Panel Inputs
  communicates the inputs made on the touch panel to the CPU on the main controller PCB.
- Controlling the Buzzer Sound
- Controlling the Control Panel LED

Memo:
The color LCD is driven by the main controller, and the control panel CPU PCB serves to relay the drive signals.

10.2 Counters

10.2.1 Overview

The machine is equipped with counters used to keep count of prints according to output functions; the counters are indicated on the control panel in response to a press on the Check key on the panel. The following shows the counters and the settings made at time of shipment from the factory:

T-10-1

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
100V *1 ***	total 1	total (black-and-white 1)	copy (full color + mono color 1)	print (full color + mono color 1)	not indicated**	not indicated**
	101	**108**	**232**	**324**	**000**	**000**

T-10-2

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
100V *1 ****	total 2	copy (full color + mono color 2)	total A (full color + mono color 2)	copy (black-and-white 1)	total A (black-and-white 2)	not indicated **
	102	**231**	**148**	**222**	**133**	**000**

T-10-3

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
120V TW *2	total 1	total (black-and-white 1)	copy + print (full color; large)	copy + print (full color; small)	total (mono color 1)	not indicated**
	101	**108**	**401**	**402**	**118**	**000**

T-10-4

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
120V UL *3	total 1	total (black-and-white 1)	copy (full color + mono color; large)	copy (full color + mono color; small)	print (full color + mono color: large)	print (full color + mono color; small)
	101	**108**	**229**	**230**	**321**	**322**

T-10-5

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
230V *4	total 1	total (black-and-white 1)	copy + print (full color; large)	copy + print (full color; small)	total (mono color 1)	total 1 (double-sided)
	101	**108**	**401**	**402**	**118**	**114**

T-10-6

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
240V UK *5	total 1	total (full color + mono color; large)	total (full color + mono color; small)	total (black-and-white; large)	total (black-and-white; small)	scan (total 1)
	101	**122**	**123**	**112**	**113**	**501**

T-10-7

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
240V CA *6	total 1	total (black-and-white 1)	copy (full color + mono color; large)	copy (full color + mono color; small)	print (full color + mono color; large)	print (full color + mono color; small)
	101	**108**	**229**	**230**	**321**	**322**

T-10-8

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
230V FRN *7	total 1	total (full color + mono color; large)	total (full color + mono color; small)	total (black-and-white; large)	total (black-and-white; small)	scan (total 1)
	101	**122**	**123**	**112**	**113**	**501**

T-10-9

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
230V GER *8	total 1	total (full color + mono color; large)	total (full color + mono color; small)	total (black-and-white; large)	total (black-and-white; small)	scan (total 1)
	101	**122**	**123**	**112**	**113**	**501**

T-10-10

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
230V AMS *9	total 1	total (full color + mono color; large)	total (full color + mono color; small)	total (black-and-white; large)	total (black-and-white; small)	scan (total 1))
	101	**122**	**123**	**112**	**113**	**501**

T-10-11

Model	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
230V ITA *10	total 1	total (full color + mono color; large)	total (full color + mono color; small)	total (black-and-white; large)	total (black-and-white; small)	scan (total 1)
	101	**122**	**123**	**112**	**113**	**501**

<Notations>

large: large-size paper (sheet in excess of 364 mm in length in paper feed direction; count

increased by 1).
small: small-size paper (sheet 364 mm or shorter in length in paper feed direction).
total: all (copy + print); count increased by 1.
double-sided: in auto duplexing mode, count increased by 1.
- the 3-digit notation in the Counter column shows the setting of the following service mode item: COPIER>OPTION>USER>COUNTER 1 through 6
- counters 2 through 6 may be changed using the following service mode item: COPIER>OPTION>USER.

*1 : F14-4011/4012
*2 : F14-4001
*3 : F14-4031
*4 : F14-4041/4042/4060/4070
*5 : F14-4051/4054
*6 : F14-4061/4062
*7 : F14-4071/4072
*8 : F14-4081/4082
*9 : F14-4091/4091
*10 : F14-4021/4022
** : by default, not indicated; may be changed in serve mode.
*** : if '0' is set for the following: COPIER>OPTION>USER>CNT-SW.
****: if '1' is set for the following: COPIER>OPTION>USER>CNT-SW.

10.2.2 Increasing the Count

The machine increases the count based on the type of print (single-sided or double-sided) and the presence/absence of a finisher.

a. Single-Sided Print, 2nd Side of a Double-Sided Print

When making a single-sided print or the 2nd side of a double-sided print, the machine increases the count when the trailing edge of paper is discharged outside the machine (as indicated by the output of the following sensor).

T-10-12

Finisher	Sensor
present	outside delivery sensor (PS13)
absent	delivery sensor of the finisher

b. 1st Side of a Double-Sided Print

The machine assumes the end of printing on the 1st side of a double-sided print to be when the duplexing left sensor (PS17) goes on, thus increasing the count.

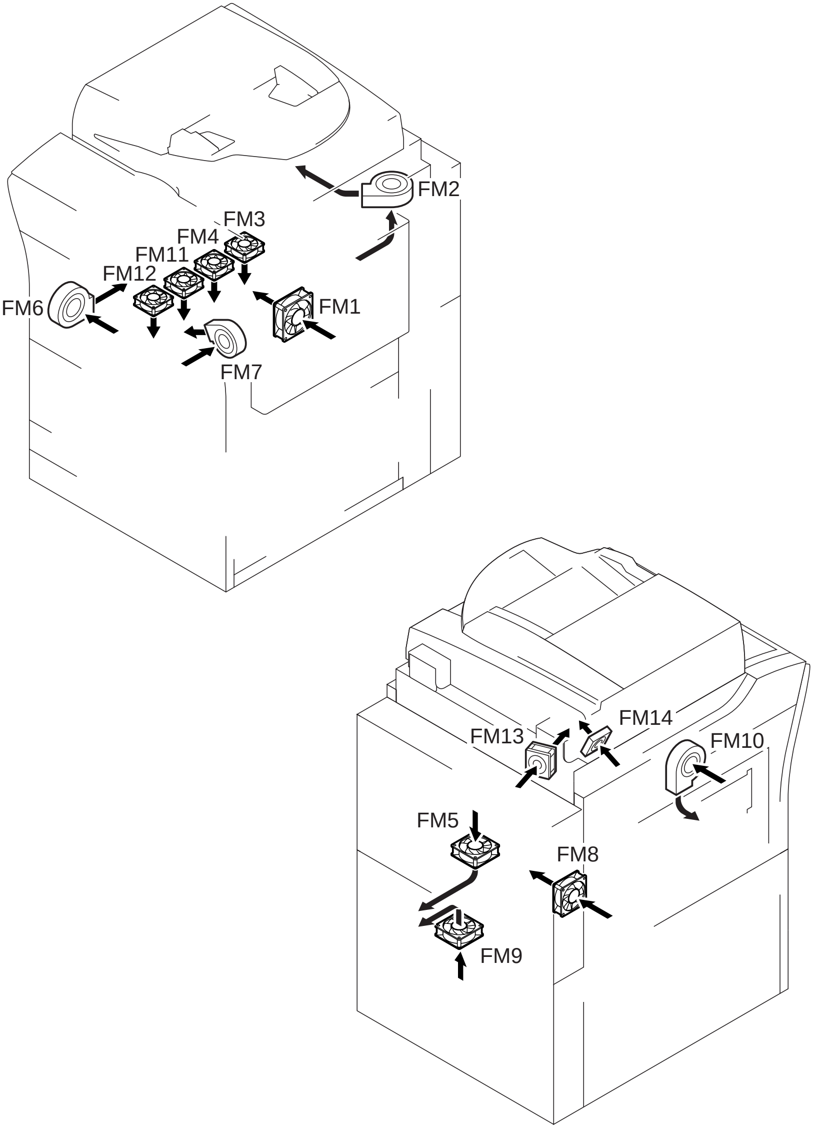
10.3 Fans

10.3.1 Overview

The following shows the names and functions of the fans used in the machine:

T-10-13

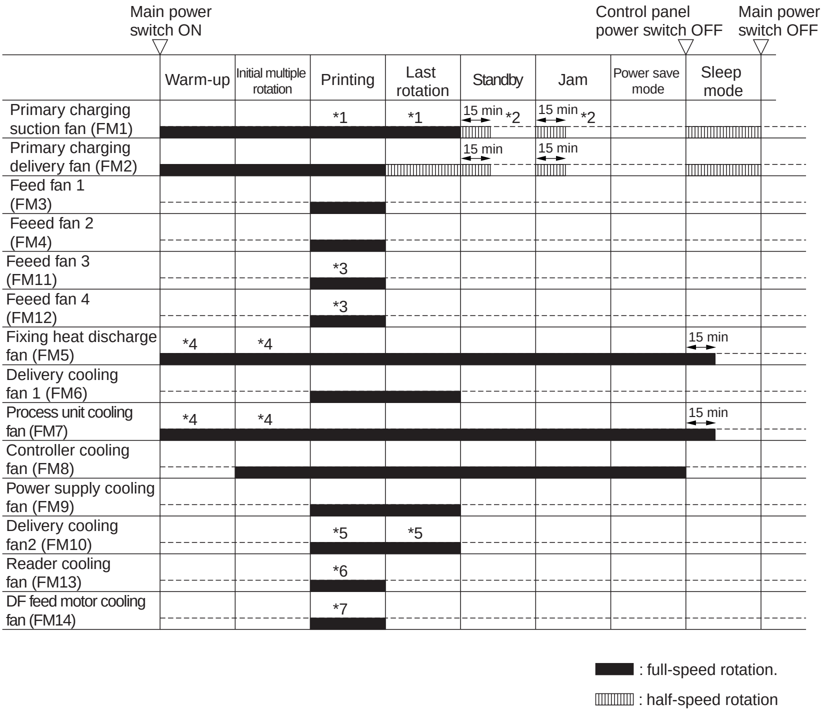
Notation	Name	Filter	2-speed control	Description	error
FM1	primary charging suction fan	yes	yes	draws air from outside the machine to the primary charging assembly.	E824-0000
FM2	primary charging exhaust fan	yes	yes	discharges exhaust from around the primary charging assembly.	E824-0001
FM3	feed fan 1	no	no	keeps paper on the feed belt.	
FM4	feed fan 2	no	no	keeps paper on the feed belt.	
FM11	feed fan 3	no	no	keeps paper on the feed belt.	
FM12	feed fan 4	no	no	keeps paper on the feed belt.	
FM5	fixing heat exhaust fan	no	yes	discharges heat generated by the fixing assembly.	E805-0003
FM6	delivery cooling fan 1	no	no	cools the delivery assembly.	
FM7	process unit cooling fan	no	yes	cools the process unit.	E804-0002
FM8	controller cooling fan	no	no	cools the controller.	E804-0004
FM9	power supply cooling fan	no	no	cools the power supply.	E804-0007
FM10	delivery cooling fan 2	no	yes	cools paper at time of delivery.	
FM13	reader cooling fan	no	no	cools reader unit	
FM14	DF feed motor cooling fan	no	no	cools DF feed motor	


FM2
FM3
FM4
FM11
FM12
FM6
FM1
FM7
FM14
FM13
FM10
FM5
FM8
FM9

F-10-2

10.3.2 Sequence of Operations

The machine uses the following sequence of operation to turn on or off the fans:


Main power switch ON
Control panel power switch OFF
Main power switch OFF
Warm-up
Initial multiple rotation
Printing
Last rotation
Standby
Jam
Power save mode
Sleep mode
Primary charging suction fan (FM1)
Primary charging delivery fan (FM2)
Feed fan 1 (FM3)
Feeed fan 2 (FM4)
Feeed fan 3 (FM11)
Feeed fan 4 (FM12)
Fixing heat discharge fan (FM5)
Delivery cooling fan 1 (FM6)
Process unit cooling fan (FM7)
Controller cooling fan (FM8)
Power supply cooling fan (FM9)
Delivery cooling fan2 (FM10)
Reader cooling fan (FM13)
DF feed motor cooling fan (FM14)
*1
*1
15 min *2
15 min *2
15 min
15 min
*3
*3
*4
*4
15 min
*4
*4
15 min
*5
*5
*6
*7
: full-speed rotation.
: half-speed rotation

F-10-3

*1: if in a high temperature/humidity environment, half-speed rotation.

*2: if in a high temperature/humidity environment, full-speed rotation.

*3: rotates only if all following conditions exist: paper shorter than LTR (216 mm or less), heavy paper mode, full color duplexing mode.

*4: if the fixing temperature is 100 deg C or higher when the main power switch is tuned on, full-speed rotation; if lower than 100 deg C, stops. However, even when the fixing roller is lower than 100 deg C, half-speed rotation will be used if the temperature of th outside heating roller is 100 deg C or higher.

*5: if a finisher is installed, full-speed rotation at all times; if a delivery tray or a shift tray is installed, rotates only in mono color transparency mode. (for the US mode, full-speed rotation; for non-US models, half-speed rotation)

*6: rotates when the scanning lamp goes on.

*7: rotates when the DF feed motor is on.

10.4 Power Supply

10.4.1 Power Supply

10.4.1.1 Route of Power Supply Inside the Printer Unit

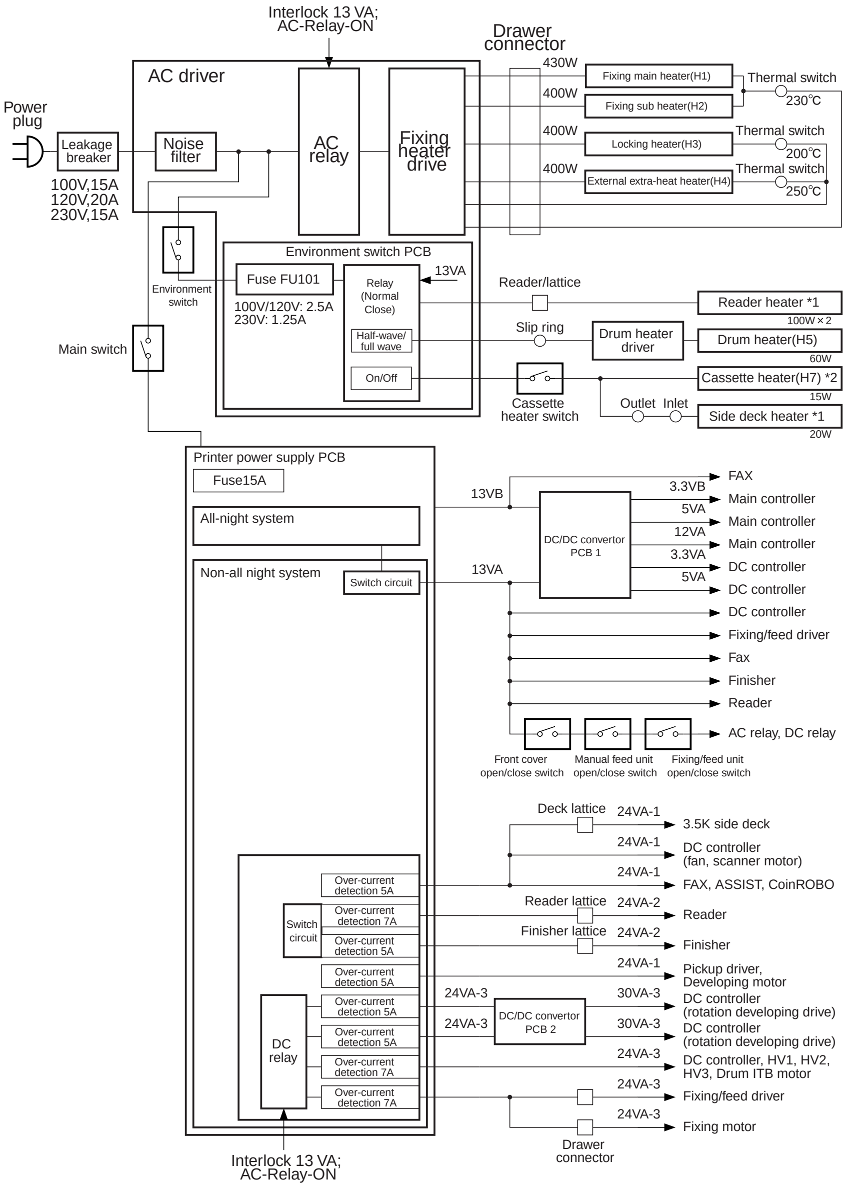
The machine's DC power supply is controlled by the printer power supply PCB. The power to accessories is also controlled by the printer power supply PCB.
The following shows the functions of PCBs associated with power supply:

T-10-14

Name	Description
Printer power supply PCB (DC power supply PCB + DC power supply relay PCB)	generates DC power (24 V, 13 V); supplies DC power to the controller power supply PCB, DC controller PCB, pickup driver PCB, fixing diver PCB, high-voltage power supply PCB, reader unit, finisher, side deck, fax board.
AC driver PCB	supplies AC power to the printer power supply PCB and the fixing heater drive.
Environment switch PCB	turns on and off the power to the drum heater, reader heater 1, cassette heater, and deck heater*1.
DC/DC converter PCB 1	supplies DC power to the main controller PCB and the DC controller PCB.
Main power switch	turns on and off the AC power to the printer power supply PCB.
Door switch	turns on and off the 3 VA.
Leakage breaker	cuts off power in the event of an error.

*1: in the case of the 100/230-V model, optional; in the case of the 120-V model, not available.

*2: in the case of the 100-V model, standard; in the case of the 120-V model, not available.


Interlock 13 VA;
AC-Relay-ON
Drawer connector
AC driver
Power plug
Leakage breaker
Noise filter
AC relay
Fixing heater drive
100V,15A
120V,20A
230V,15A
430W
400W
400W
400W
Fixing main heater(H1)
Fixing sub heater(H2)
Locking heater(H3)
External extra-heat heater(H4)
Thermal switch
230℃
Thermal switch
200℃
Thermal switch
250℃
Environment switch
Environment switch PCB
Fuse FU101
100V/120V: 2.5A
230V: 1.25A
Relay (Normal Close)
Half-wave/ full wave
On/Off
13VA
Main switch
Reader/lattice
Reader heater *1
100W×2
Slip ring
Drum heater driver
Drum heater(H5)
60W
Cassette heater switch
Cassette heater(H7) *2
15W
Outlet
Inlet
Side deck heater *1
20W
Printer power supply PCB
Fuse15A
All-night system
Non-all night system
Switch circuit
13VB
13VA
DC/DC convertor PCB 1
3.3VB
5VA
12VA
3.3VA
5VA
FAX
Main controller
Main controller
Main controller
DC controller
DC controller
DC controller
Fixing/feed driver
Fax
Finisher
Reader
AC relay, DC relay
Front cover open/close switch
Manual feed unit open/close switch
Fixing/feed unit open/close switch
Deck lattice
24VA-1
3.5K side deck
24VA-1
DC controller (fan, scanner motor)
24VA-1
FAX, ASSIST, CoinROBO
Reader lattice
24VA-2
Reader
Finisher lattice
24VA-2
Finisher
24VA-1
Pickup driver, Developing motor
Over-current detection 5A
Over-current detection 7A
Over-current detection 5A
Over-current detection 5A
Over-current detection 5A
Over-current detection 5A
Over-current detection 7A
Over-current detection 7A
Switch circuit
DC relay
24VA-3
24VA-3
DC/DC convertor PCB 2
30VA-3
DC controller (rotation developing drive)
30VA-3
DC controller (rotation developing drive)
24VA-3
DC controller, HV1, HV2, HV3, Drum ITB motor
24VA-3
Fixing/feed driver
24VA-3
Fixing motor
Drawer connector
Interlock 13 VA;
AC-Relay-ON

*1: 100V/230V: Option, 120V: None
*2: 100V: Standard, 230V: Option, 120V: None

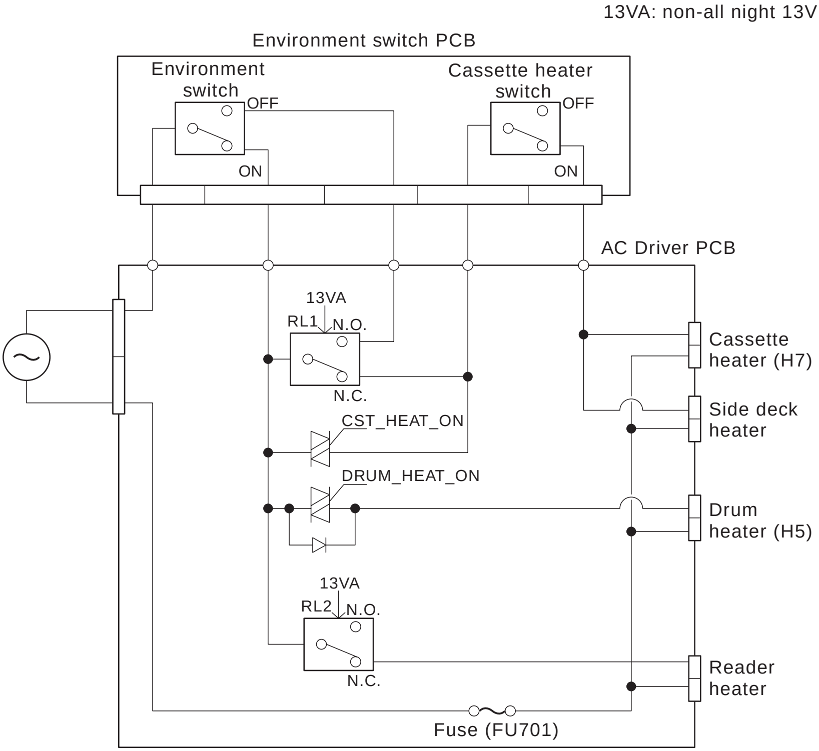
F-10-4

T-10-15

Operating mode		**Main power switch**	**Sleep**	**Low power**	**Door open**	**Fixing error**	**Print***
Main power switch		**OFF**	**ON**	**ON**	**ON**	**ON**	**ON**
all-night	13VB	OFF	ON	ON	ON	ON	ON
non-all night	13VA	OFF	OFF	ON	ON	ON	ON
	24VA-1	OFF	OFF	OFF	ON	ON	ON
	24VA-2	OFF	OFF	OFF	ON	ON	ON
	24VA-3	OFF	OFF	OFF	OFF	ON	ON
	30VA-3	OFF	OFF	OFF	OFF	ON	ON
	DC relay	OFF	OFF	OFF	OFF	ON	ON
	AC relay	OFF	OFF	ON	OFF	OFF	ON

* same is true for standby, warm-up, and recovery.

10.4.1.2 Power to the Environment Heater


13VA: non-all night 13V
Environment switch PCB
Environment switch
OFF
ON
Cassette heater switch
OFF
ON
AC Driver PCB
13VA
RL1
N.O.
N.C.
CST_HEAT_ON
DRUM_HEAT_ON
13VA
RL2
N.O.
N.C.
Cassette heater (H7)
Side deck heater
Drum heater (H5)
Reader heater
Fuse (FU701)

F-10-5

The following shows how the environment heater is supplied with power according to the machine's different modes:
(full-wave: full-wave control; half-wave: half-wave control)

a. Environment Switch OFF

T-10-16

Operating mode	**Main power OFF**		**Sleep**		**Lower power**		**Standby**		**Printing**	
Main power OFF	**OFF**		**ON**							
Cassette heater switch	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**
Drum Heater	OFF	OFF	OFF	OFF	full-wave	full-wave	full-wave	full-wave	half-wave	half-wave
Cassette Heater	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
Reader unit Heater	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

b. Environment Switch ON

T-10-17

Operating mode	**Main power OFF**		**Sleep**		**Low power**		**Standby**		**Printing**	
Main power OFF	**OFF**		**ON**							
Cassette heater switch	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**
Drum Heater	half-wave	half-wave	half-wave	half-wave	full-wave	full-wave	full-wave	full-wave	half-wave	half-wave
Casset teHeater	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
Reader unit Heater	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF

10.4.2 Rated Output of DC Power Supply PCB

10.4.2.1 Rated Output of the Printer Power Supply PCB

The following shows the ratings and the power supply tolerances of the printer power supply PCB (DC power supply PCB + DC power supply relay PCB):

T-10-18

Output	13VA	13VB	24VA-1	24VA-2	24VA-3
All-night /non-all night	non-all night	all-night	non-all night	non-all night	non-all night
Rated output	13.2V	13.2V	24V	24V	24V
Tolerance	+/- 3%	+/- 3%	+8%, -6%	+8%, -6%	+8%, -6%

10.4.2.2 Rated Output of the DC/DC Converter PCB 1

The following shows the ratings and the power supply tolerances of the DC/DC converter PCB 1:

T-10-19

Output	3VA	3VB	5VA	12VA
All-night /non-all night	non-all night	all-night	non-all night	non-all night
Rated output	3.4V	3.4V	5.1V	12V
Tolerances	+/- 4%	+/- 4%	+/- 3%	+5%, -6%

10.4.2.3 Rated Output of the DC/DC Converter PCB 2

The following shows the rating and the power supply tolerances of the DC/DC converter PCB:

T-10-20

Output	30VA-3
All-night/non-all night	non-all night
Rated output	30V
Tolerance	+/- 5%

10.4.3 Protection Function

10.4.3.1 Protection of the Power Supply PCB

The machine' s printer power supply PCB is equipped with a protective mechanism against the presence of excess current or voltage; i.e., if a short-circuit, for instance, occurs on any of the loads to cause over-current or over-voltage, the machine will automatically shut off the output voltage to protect the power supply circuit.
When the protective mechanism has gone on, turn off the main power switch of the printer unit, remove the cause of the activation, leave the machine alone for about 3 min or more, and then turn it back on to reset the protective circuit.

10.4.3.2 Protection by a Fuse

Some PCBs of the machine are equipped with a fuse to protect against over-current occurring in a load. The fuse will melt in the presence of over-current, thereby cutting off the output of the power line.

T-10-21

PCB	**Fuse notation**	**Rating**	**Reference voltage**	**Load**
DC controller PCB	FU1	2A/60V	13VDC	Primary charging suction fan (FM1), Fixing heat discharge fan (FM5), Process unit cooling fan (FM7); half-speed drive
	FU2	2A/60V	24VDC	Primary charging suction fan (FM1), Fixing heat discharge fan (FM5), Process unit cooling fan (FM7); full-speed drive
	FU3	7A/60V	30VDC	Developing rotary motor (phase A)
	FU4	7A/60V	30VDC	Developing rotary motor (phase B)
AC driver PCB (100 V)	FU701	2.5A/125V	100VAC	Cassette heater, Deck heater

PCB	Fuse notation	Rating	Reference voltage	Load
AC driver PCB (200 V)	FU701	1.25A/250V	200VAC	Cassette heater, Deck heater
DC power supply PCB (100 V)	FU101	15A/250V	100VAC	DC power supply PCB
DC power supply PCB (200 V)	FU101	6.3A/250V	200VAC	DC power supply PCB
DC/DC converter PCB 1	FU500	5A/24V	13VDC	3.3V DC/DC convert pickup (on DC/DC convert PCB 1)
DC power supply relay PCB	FU801	2A/60V	12VDC	ATR sensor (through DC controller PCB)
	FU802	2A/60V	12VDC(-)	ATR sensor (through DC controller PCB)
Fixing/feed driver PCB	FU201	60V/1.5A	24VDC	Feed fan 3, 4 (FM11, FM12)
	FU202	60V/1.5A	24VDC	Feed fan 1, 2 (FM3, FM4)
	FU301	60V/1.5A	24VDC	Reversal shifting solenoid (SL3), Delivery solenoid (SL5)
	FU401	60V/1.5A	24VDC	Delivery cooling fan 1 (FM6)
	FU405	60V/3.15A	24VDC	Secondary transfer outside roller shift motor (M20)
	FU701	50V/800mA	13VDC	5V DC/DC converter circuit (on Fixing/ feed driver PCB)
	FU702	50V/800mA	13VDC	3.3 DC/DC converter circuit (on Fixing/ feed driver PCB)
Pickup driver PCB	FU1	60V/1.5A	24VDC	not used
	FU2	50V/1.0A	13VDC	5V DC/DC converter circuit (on Pickup drive PCB)

10.4.4 Backup Battery

10.4.4.1 Backup Battery

The SRAM PCB and the DC controller PCB of the machine's main controller PCB are equipped with a lithium battery (1 pc. each) serving as a backup source of power in the event of a power shortage or when the power plug is disconnected.

T-10-22

SRAM PCB	manganese dioxide lithium battery (3 V, 100 mAh)
DC controller PCB	lithium battery (3 V, 6000 mAh)
Life	10 yr or more (true of both; with power plug disconnected)
Replacement	not possible in the field on its own.

⚠You must always handle the batteries properly. Be sure to use batteries indicated by the manufacture (same name or equivalent). Be sure to dispose of any used battery in strict accordance with the instructions of the manufacturer.

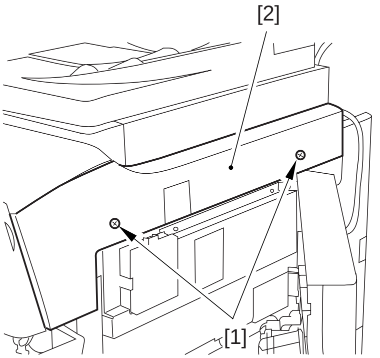
Do not use a battery which is not of a type specifically indicated (same name, or equivalent). Dispose of any used battery according to the instructions of its manufacturer.

10.5 Parts Replacement Procedure

10.5.1 Hopper Drive Unit

10.5.1.1 Removing the Right Cover (upper)

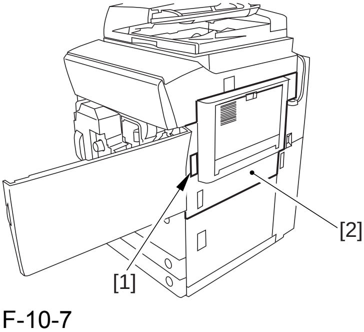
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-10-6

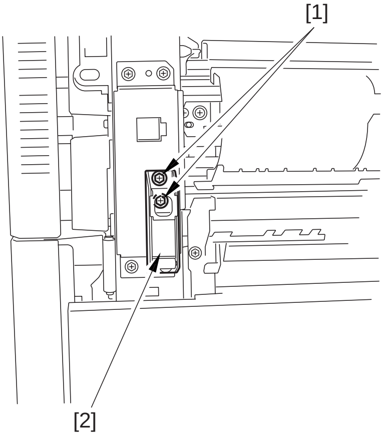
10.5.1.2 Releasing the Front Cover

1) Open the front cover.
2) While pulling on the grip [1], fully open the manual feed cover [2] to the front.



F-10-7

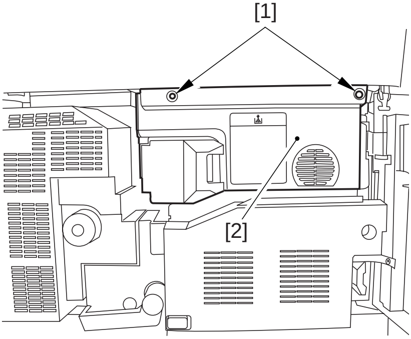
⚠ If a side paper deck exists, remove the 2 screws [1] and the latch plate (front)



F-10-8

3) Slide out the fixing/feeding assembly

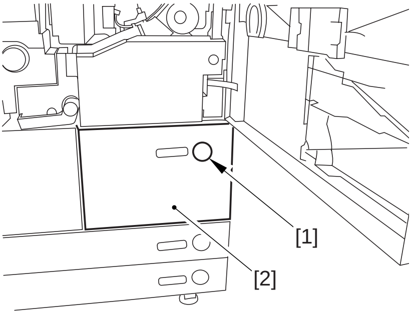
4) Remove the 2 screws [1], and detach the process unit cover [2].



F-10-9

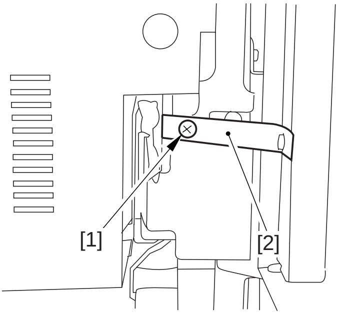
5) Push in the fixing/feeding assembly, and set the lever in place.

6) Push the release button [1] of the right deck, and slide out the right deck [2].



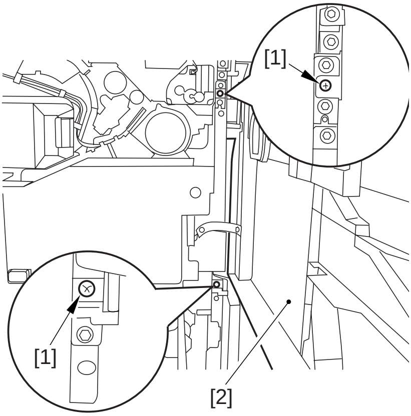
F-10-10

7) Remove the screw [1] from lower right, and detach the front cover strap [2].



F-10-11

8) Remove the 2 screws [1] (binding) of the front cover hinge, and fully open the front cover [2].

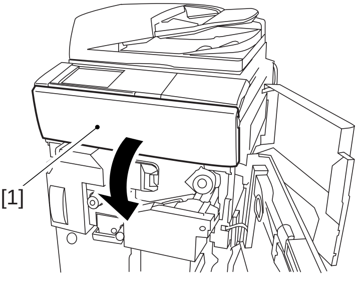


F-10-12

9) Close the right deck.

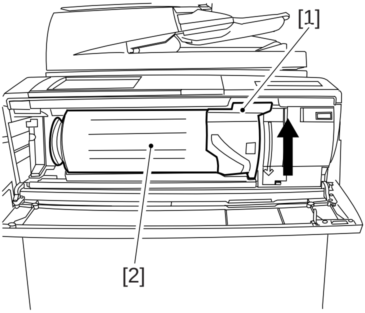
10.5.1.3 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



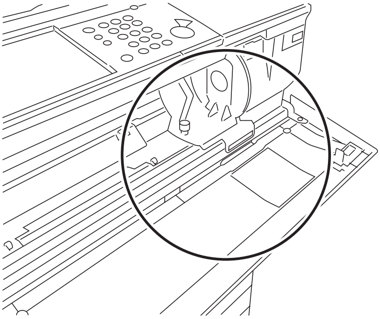
F-10-13

2) Shift down the lever [1], and detach the black toner bottle [2].



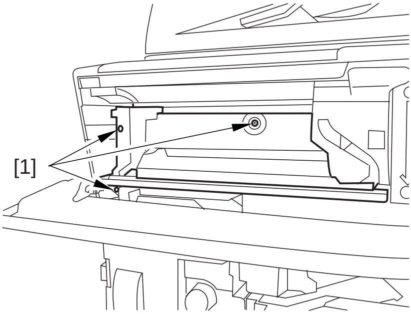
F-10-14

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



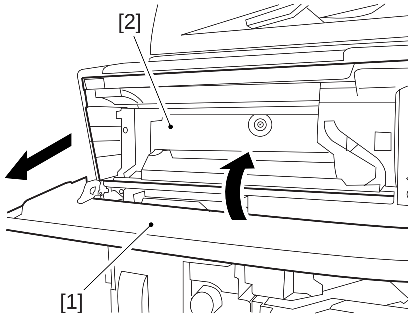
F-10-15

3) Remove the 3 screws [1].



F-10-16

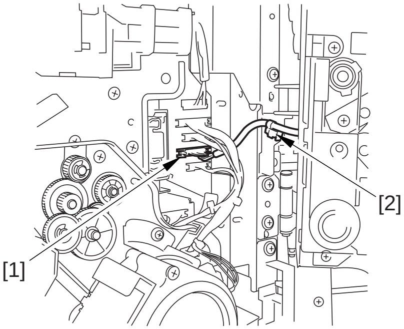
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-10-17

10.5.1.4 Removing the Hopper Assembly

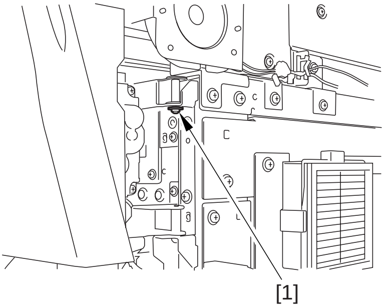
1) Disconnect the connector [1], and pick and detach the wire saddle [2].



F-10-18

2) Close the hopper assembly.

3) Remove the E-ring [1].

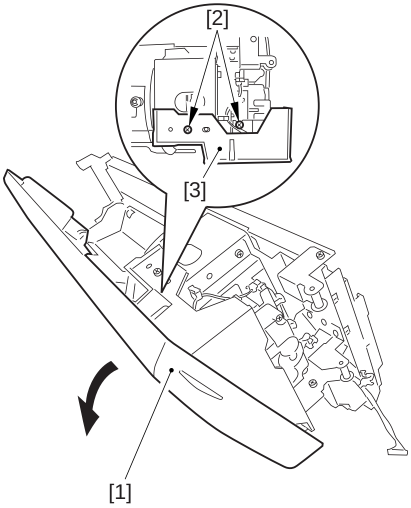


F-10-19

4) Open the hopper assembly, and lift it to detach.

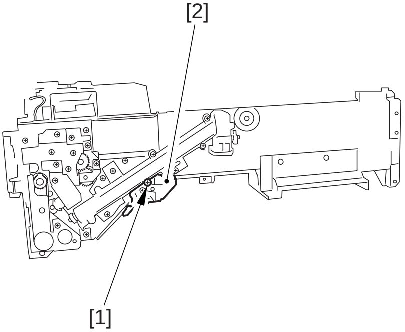
10.5.1.5 Removing the Hopper Drive Assembly

1) Open the black toner supply cover [1], and remove the 2 screws [1]; then, detach the hopper inside cover [3].



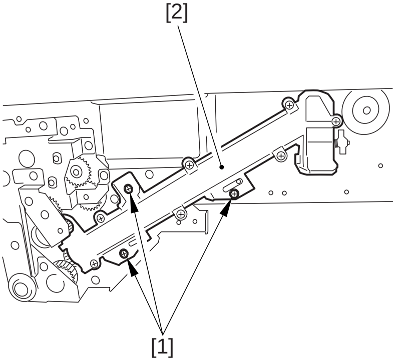
F-10-20

2) Remove the screw [1], and detach h pipe cover [2].



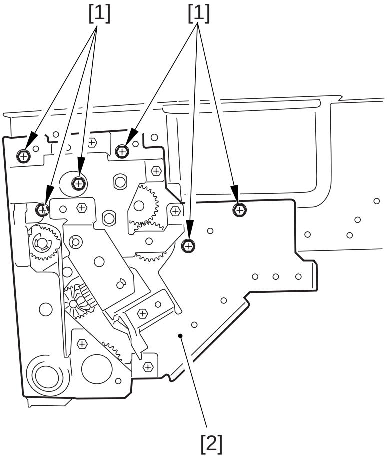
F-10-21

3) Remove the 3 screws [1], and detach the toner feed pipe [2].



F-10-22

4) Remove the 6 screws [1], and detach the hopper drive assembly [2].

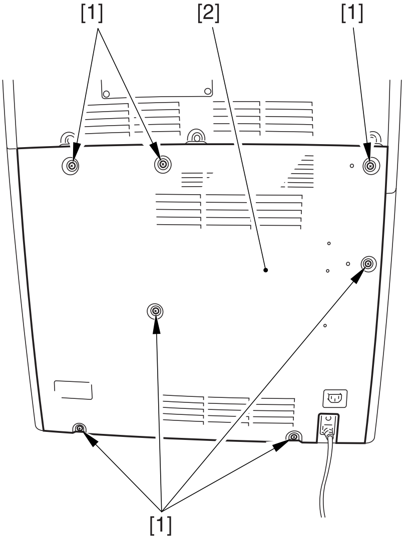


F-10-23

10.5.2 Power Cord Base

10.5.2.1 Removing the Rear Cover (lower)

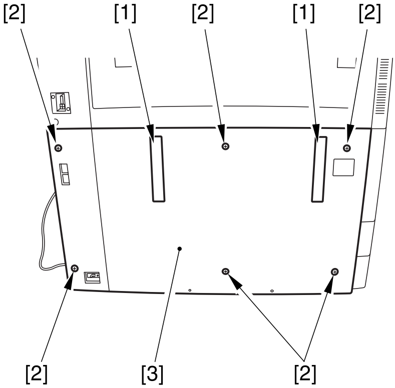
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-24

10.5.2.2 Removing the Left Cover (lower)

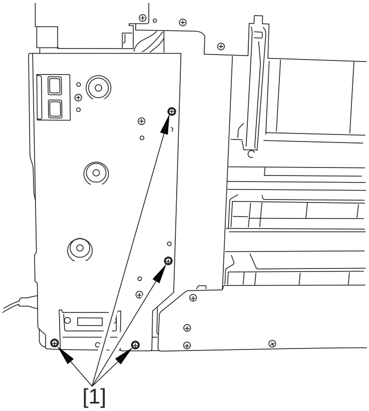
1) Remove the 2 grip covers [1].
2) Remove the 6 screws [2], and detach the left cover (lower) [3].



F-10-25

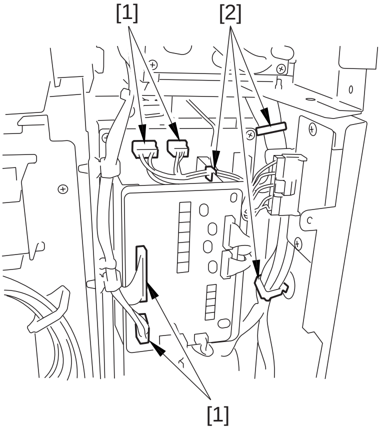
10.5.2.3 Removing the Power Cord Base

1) Remove the 4 screws [1] from the left side.



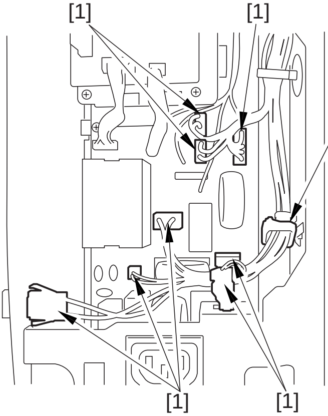
F-10-26

2) Disconnect the 4 connectors [1], and open the 3 wire saddles [2].



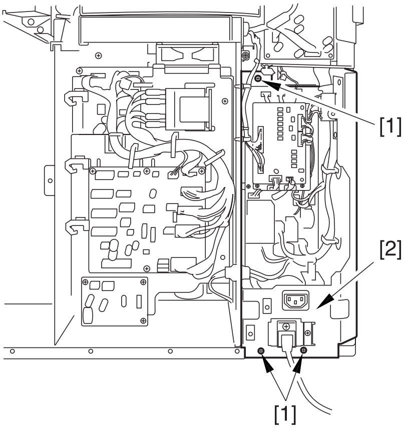
F-10-27

3) Disconnect the 8 connectors [1], and open the wire saddle [2].



F-10-28

4) Remove the 3 screws [1], and detach the AC driver box [2].

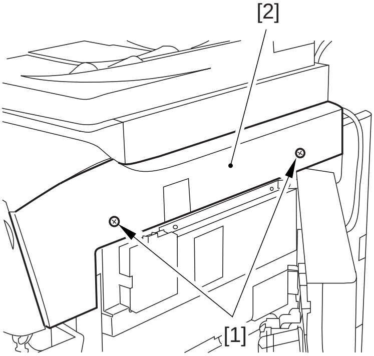


F-10-29

10.5.3 Control Panel

10.5.3.1 Removing the Right Cover (upper)

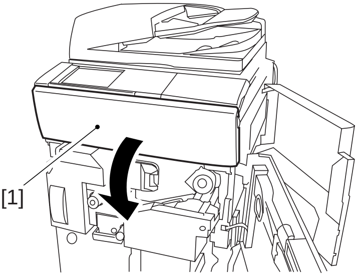
1) Remove the 2 screws [1], and detach the right cover (upper) [2].



F-10-30

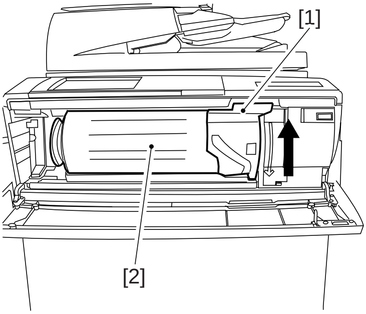
10.5.3.2 Releasing the Hopper Assembly

1) Open the black toner supply cover [1].



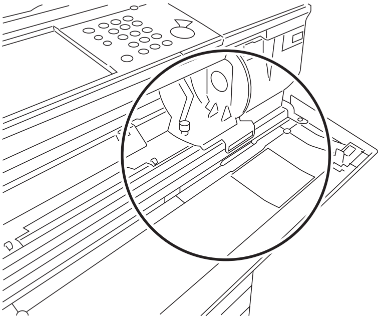
F-10-31

2) Shift down the lever [1], and detach the black toner bottle [2].



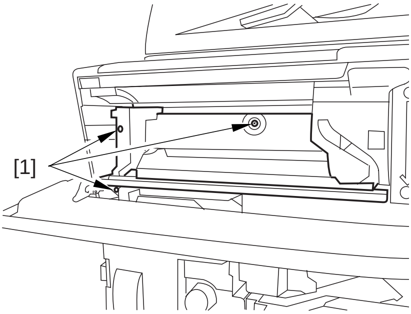
F-10-32

⚠Once you have released the hopper assembly, toner can spill over the toner bottle supply mouth of the hopper assembly cover. Be sure to wipe off any such toner.



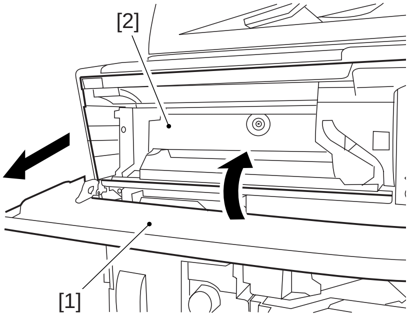
F-10-33

3) Remove the 3 screws [1].



F-10-34

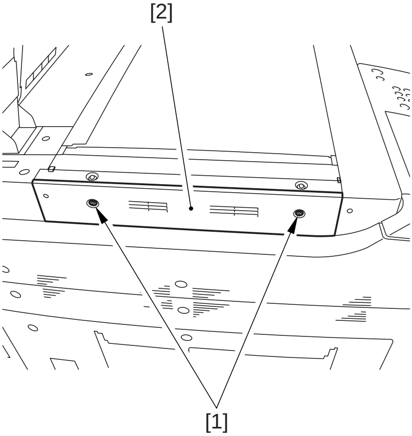
4) Close the black toner supply cover [1]; then, fully open the hopper assembly [2].



F-10-35

10.5.3.3 Removing the Reader Left Cover

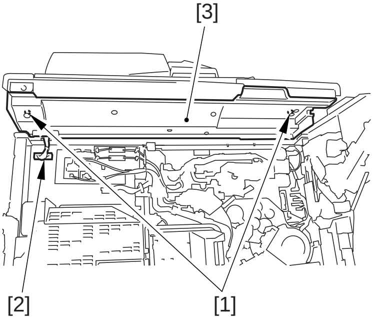
1) Remove the 2 screws [1], and detach the reader left cover [2].



F-10-36

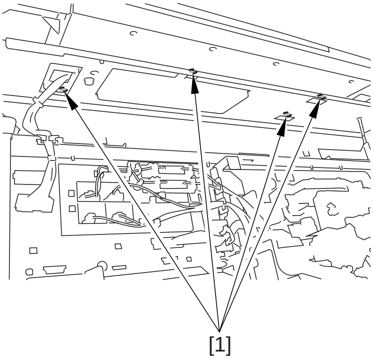
10.5.3.4 Removing the Control Panel

1) Remove the 2 screws [1], and disconnect the connector [1]; then, detach the control panel inside cover [3].



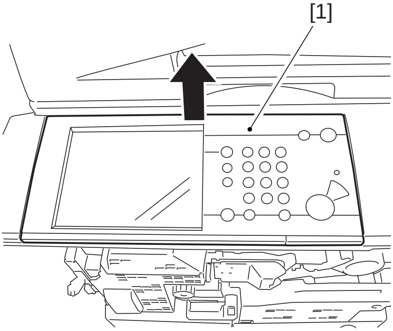
F-10-37

2) Remove the 4 screws [1].



F-10-38

3) Slide the control panel [1] in the direction of the arrow to detach.



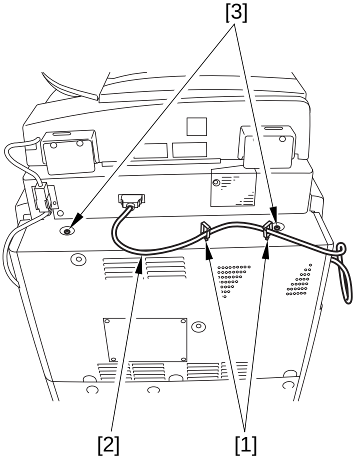
F-10-39

10.5.4 DC Controller PCB

10.5.4.1 Removing the Rear Cover (upper)

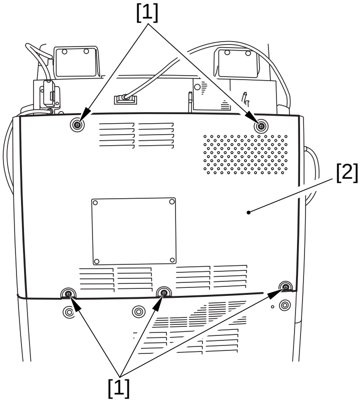
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-10-40

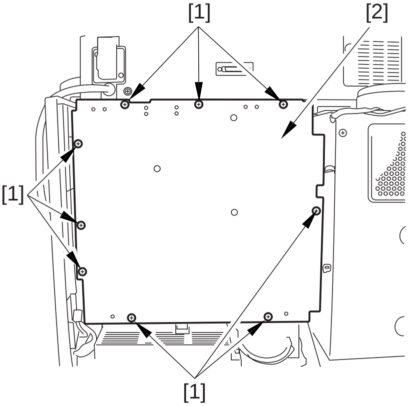
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-10-41

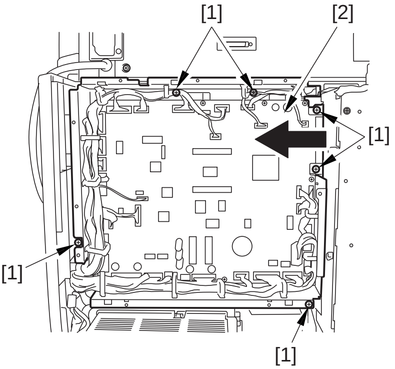
10.5.4.2 Sliding the DC Controller Box

1) Remove the 9 screws [1], and detach the DC controller cover [2].



F-10-42

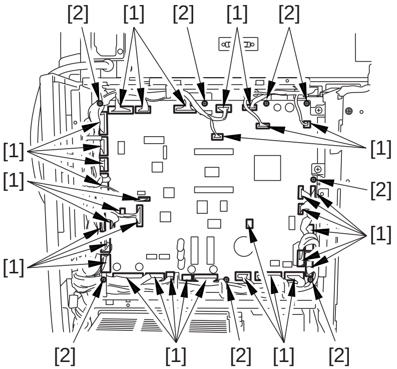
2) Remove the 6 screws [1], and slide the DC controller box [2] to the left.



F-10-43

10.5.4.3 Removing the DC Controller PCB

1) Disconnect the 33 connectors [1], and remove the 10 screws [2]; then, as necessary, open the cable guide.



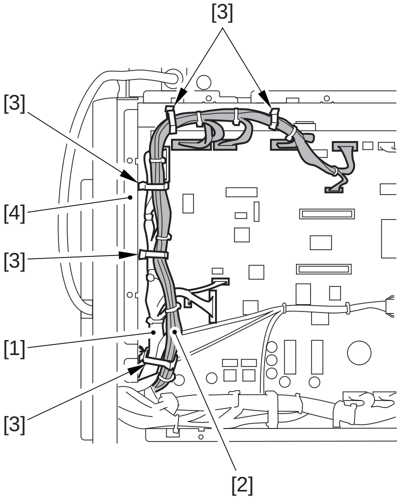
F-10-44

2) Detach the DC controller PCB.

10.5.4.4 Points to Note When Mounting the DC Controller PCB

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].
- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].



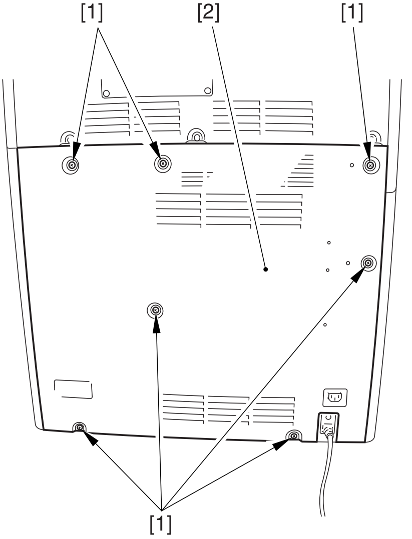
F-10-45

Supplementary Information:
If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

10.5.5 Printer Power Supply PCB

10.5.5.1 Removing the Rear Cover (lower)

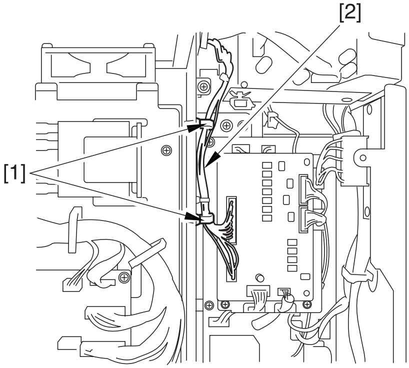
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-46

10.5.5.2 Removing the DC Power Supply Unit

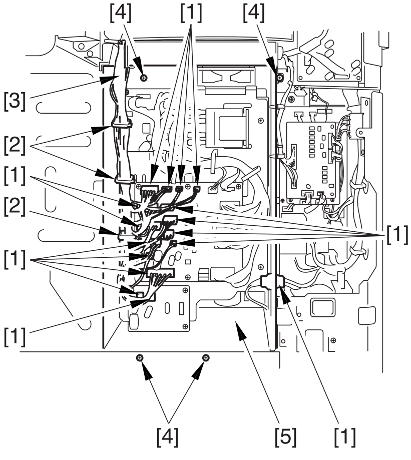
1) Open the 2 wire saddles [1], and free the harness [2].



F-10-47

2) Disconnect the 16 connectors [1], and open the 3 wire saddles [2] to free the harness [3].

3) Remove the 4 screws [4], and detach the DC power supply unit [5].

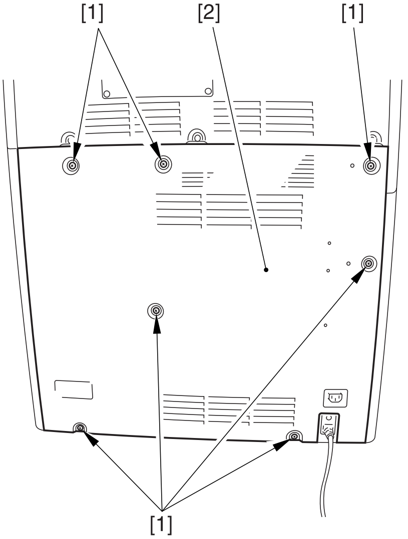


F-10-48

10.5.6 Leakage Breaker

10.5.6.1 Removing the Rear Cover (lower)

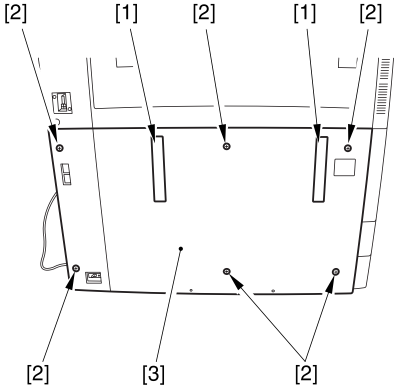
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-49

10.5.6.2 Removing the Left Cover (lower)

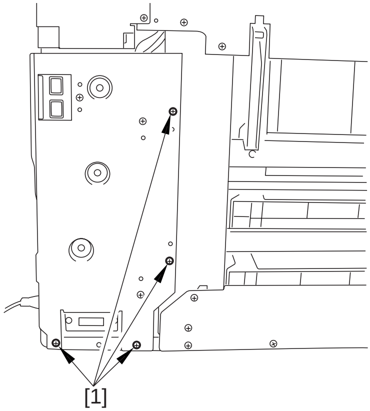
1) Remove the 2 grip covers [1].
2) Remove the 6 screws [2], and detach the left cover (lower) [3].



F-10-50

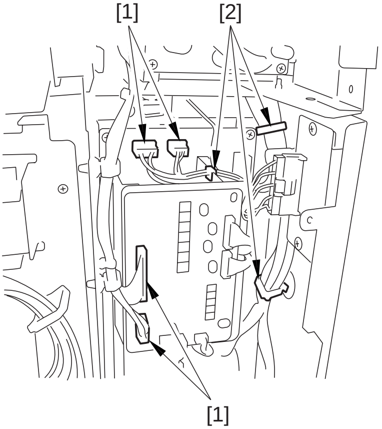
10.5.6.3 Removing the Power Cord Base

1) Remove the 4 screws [1] from the left side.



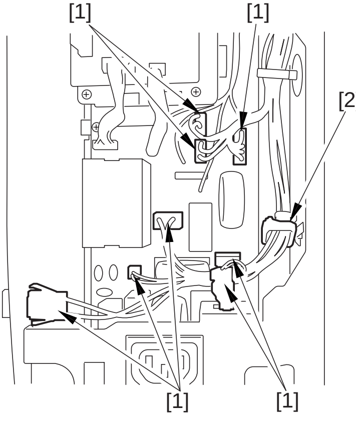
F-10-51

2) Disconnect the 4 connectors [1], and open the 3 wire saddles [2].



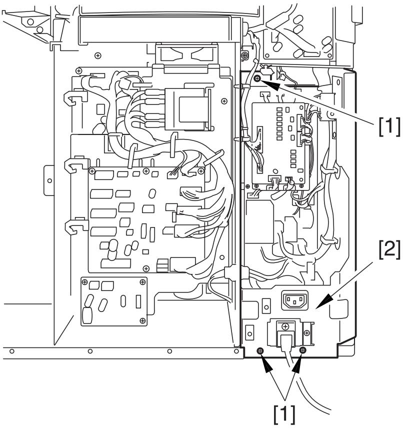
F-10-52

3) Disconnect the 8 connectors [1], and open the wire saddle [2].



F-10-53

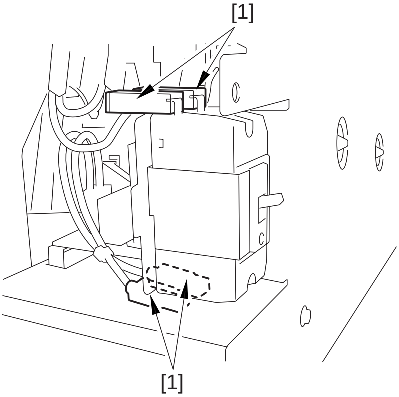
4) Remove the 3 screws [1], and detach the AC driver box [2].



F-10-54

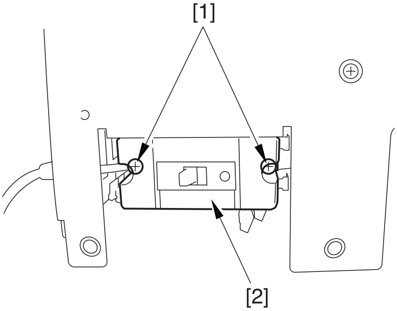
10.5.6.4 Removing the Leakage Breaker

1) Remove the 4 fastons [1].



F-10-55

2) Remove the 2 screws [1], and detach the leakage breaker [2].

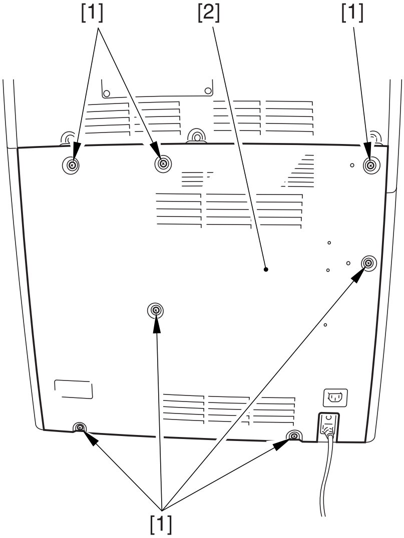


F-10-56

10.5.7 Fixing Relay

10.5.7.1 Removing the Rear Cover (lower)

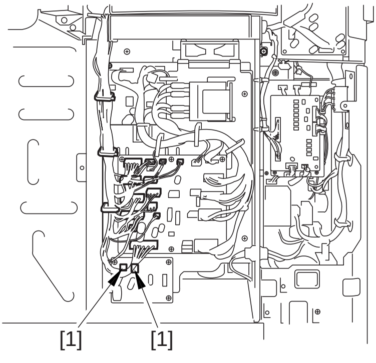
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-57

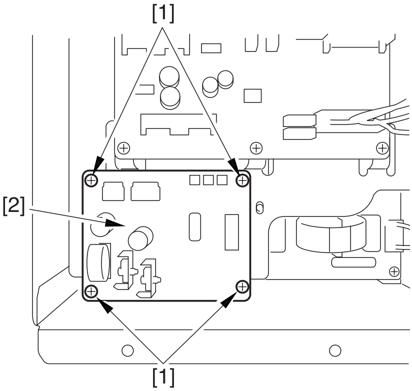
10.5.7.2 Removing the DC/DC converter PCB2

1) Disconnect the 2 connectors [1].



F-10-58

2) Remove the 4 screws [1], and detach the DC/DC converter PCB2 [2].

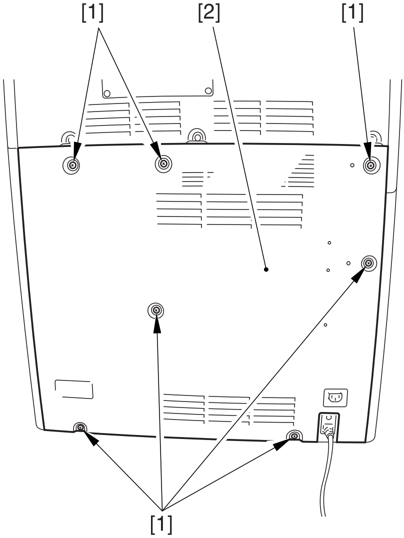


F-10-59

10.5.8 Relay PCB

10.5.8.1 Removing the Rear Cover (lower)

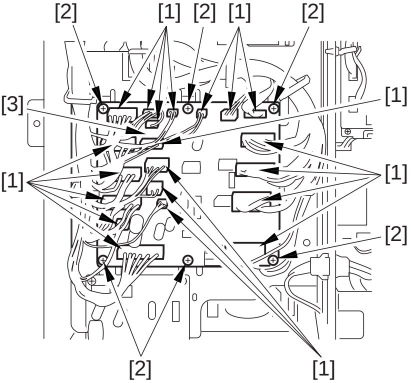
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-60

10.5.8.2 Removing the Relay PCB

1) Disconnect the 20 connectors [1], and remove the 6 screws [2]; then, detach the relay PCB [3].

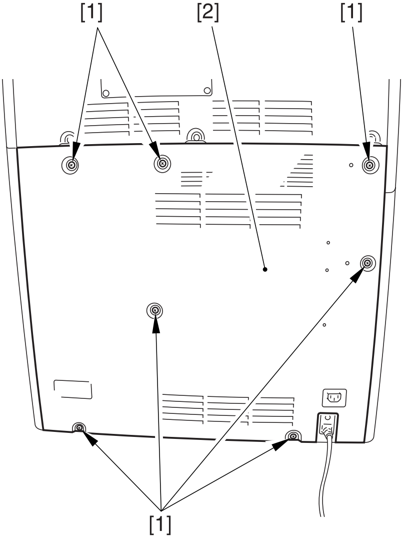


F-10-61

10.5.9 DC Relay

10.5.9.1 Removing the Rear Cover (lower)

1) Remove the 7 screws [1], and detach the rear cover (lower) [2].

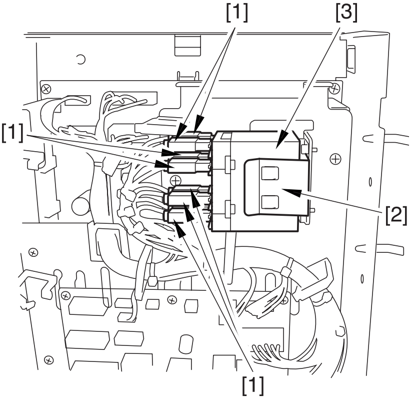


F-10-62

10.5.9.2 Removing the DC Relay

1) Remove the 8 fastons [1].

2) Pull the leaf spring [2] to the front, and detach the relay [3].

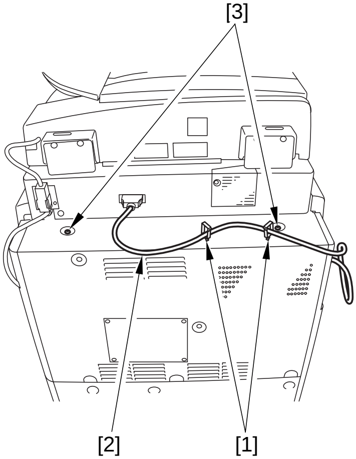


F-10-63

10.5.10 HV1 PCB

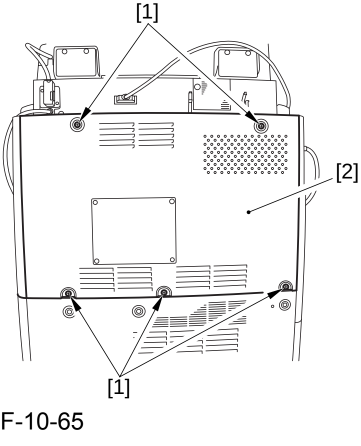
10.5.10.1 Removing the Rear Cover (upper)

1) Free the cable [2] from the 2 cable clamps [1].
2) Remove the 2 screws [3].



F-10-64

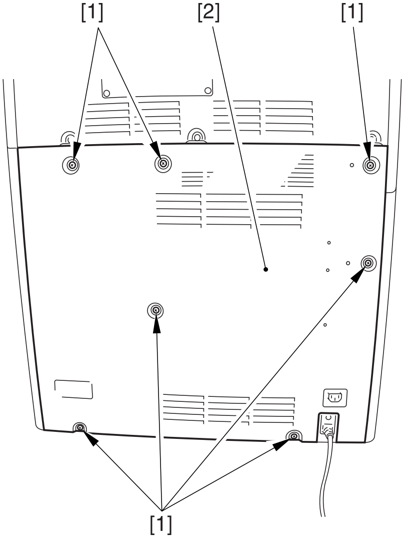
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-10-65

10.5.10.2 Removing the Rear Cover (lower)

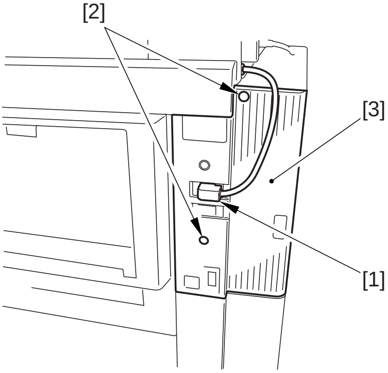
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-66

10.5.10.3 Removing the Right Cover (upper rear)

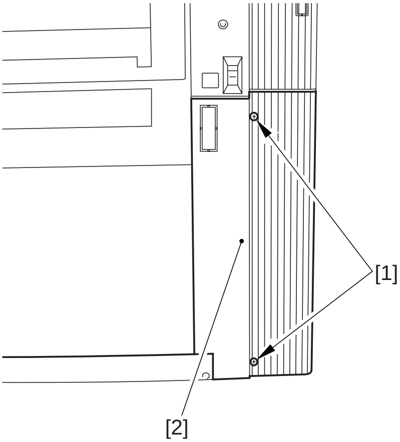
1) Detach the reader communications cable [1].
2) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



F-10-67

10.5.10.4 Removing the Right Cover (lower rear)

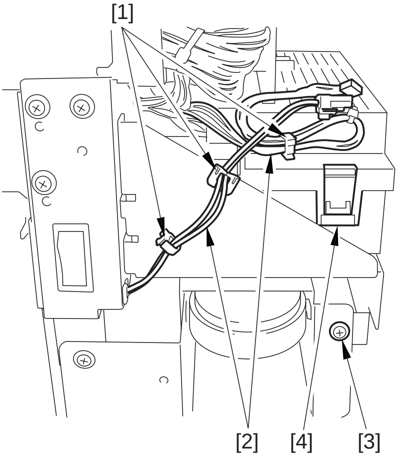
1) Remove the 2 screws [1],and detach the right cover (lower rear) [2].



F-10-68

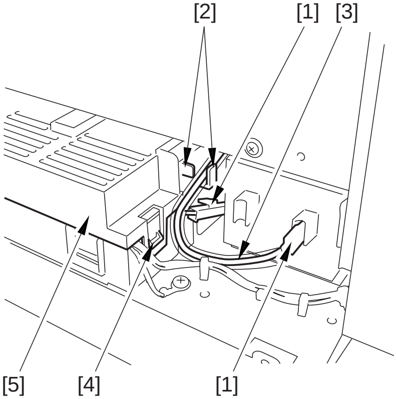
10.5.10.5 Removing the HV1 PCB

1) Open the 3 wire saddles [1], and free the 2 cables [2].
2) Remove the screw [3].
3) Release the hook [4].



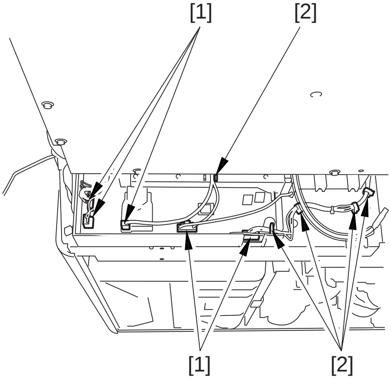
F-10-69

4) Disconnect the 2 connectors [1], and free the cable [3] from the cable guide [2].
5) Release the hook [3], and detach the lid [4].



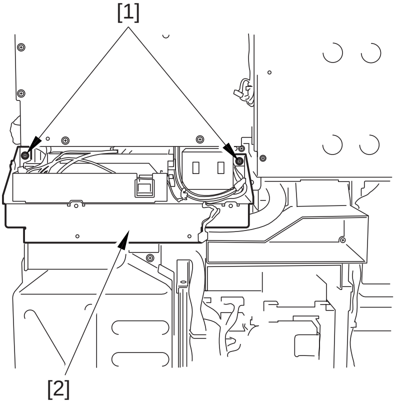
F-10-70

6) Disconnect the 5 connectors [1], and free the cable from the cable guide [2].



F-10-71

7) Remove the 2 screws [1], and lift the HV1 PCB [2] to detach.

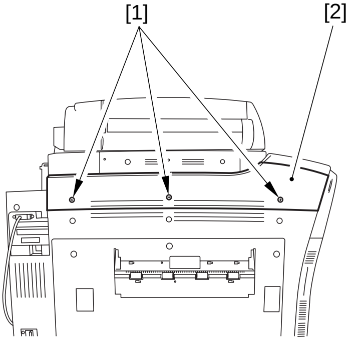


F-10-72

10.5.11 HV2 PCB

10.5.11.1 Detaching the Left Cover (upper)

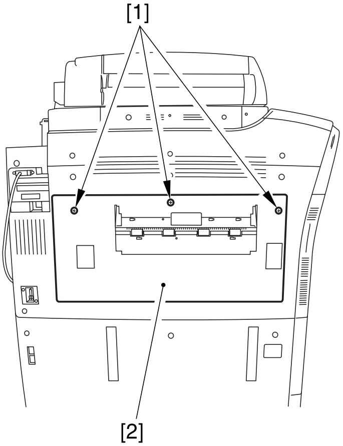
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-10-73

10.5.11.2 Removing the delivery cover

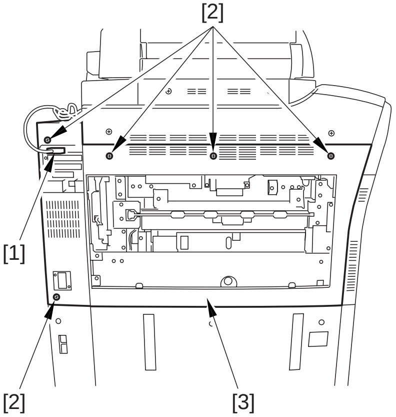
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-10-74

10.5.11.3 Removing the Left Cover (middle)

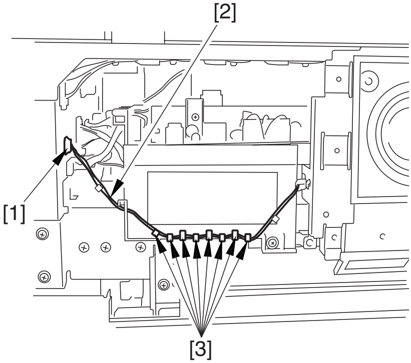
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



F-10-75

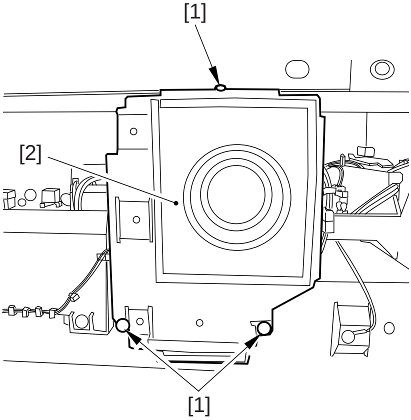
10.5.11.4 Removing the HV2 PCB

1) Disconnect the connector [1], and free the harness [2] from the cable guide [3].



F-10-76

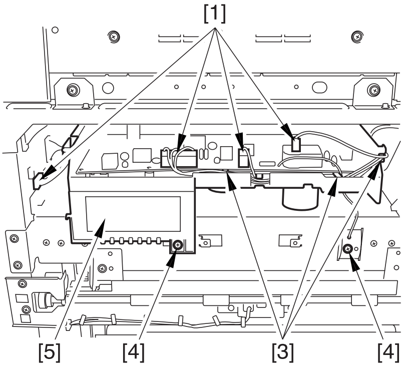
2) Remove the 3 screws [1], and detach the delivery cooling fan [2] together with its base.



F-10-77

3) Disconnect the 5 connectors [1], and free the harness from the cable guide [3].

4) Remove the 2 screws [4], and detach the HV2 PCB [5].



F-10-78

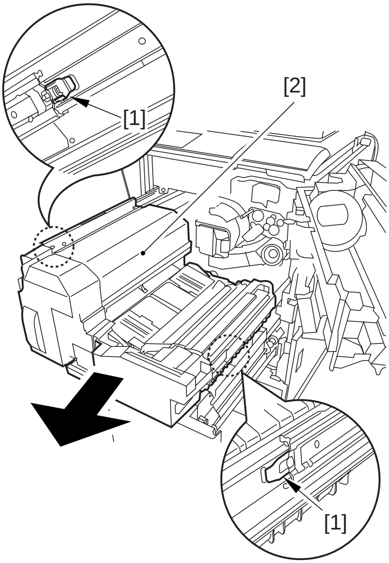
10.5.12 HV3 PCB

10.5.12.1 Removing the Secondary Transfer Unit

1) Open the front cover.

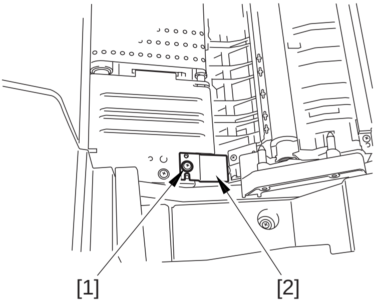
2) Slide out the fixing/feeding assembly.

3) While pushing the 2 hooks [1] frond on both sides of the fixing/feeding assembly, slide out the fixing/feeding assembly [2] fully.



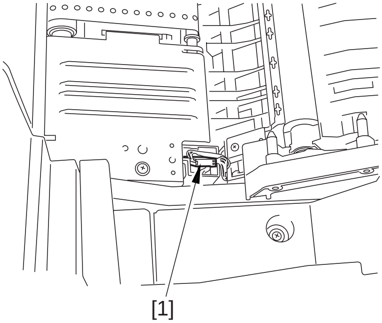
F-10-79

4) Remove the screw [1], and detach the connector cover [2].



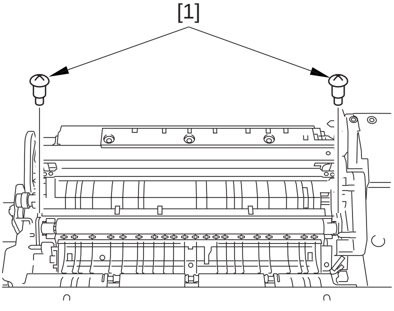
F-10-80

5) Disconnect the connector [1].



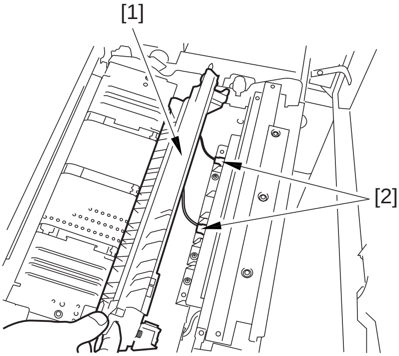
F-10-81

6) Remove the 2 stepped screws [1].



F-10-82

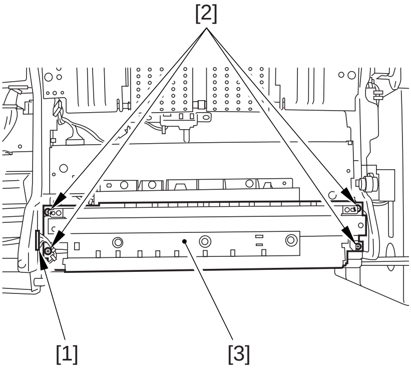
7) While shifting the secondary transfer unit [1], disconnect the 2 connectors [2]; then, detach the secondary transfer unit.



F-10-83

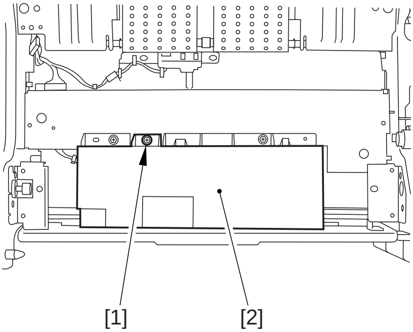
10.5.12.2 Removing the HV3 PCB

1) Disconnect the connector [1], and remove the 4 screws [2]; then, detach the registration guide unit [3].



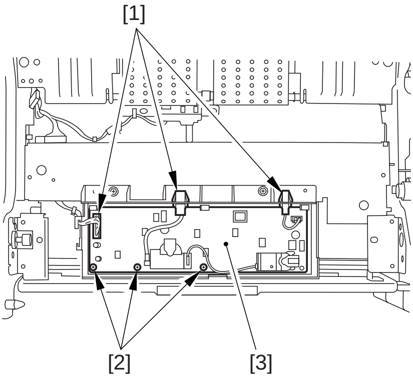
F-10-84

2) Remove the screw [1], and detach the cover [2].



F-10-85

3) Disconnect the 3 connectors [1], and remove the 3 screws [2]; then, detach the HV3 PCB [3].



F-10-86

10.5.13 Fixing/Feed Driver PCB

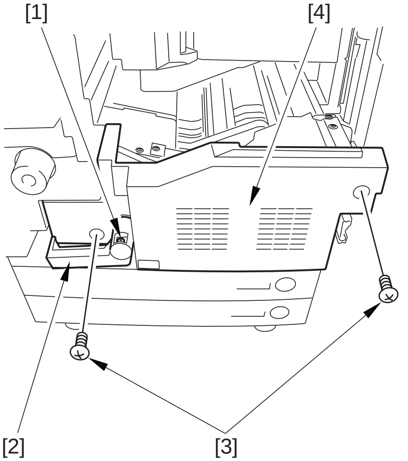
10.5.13.1 Removing Fixing/Feeding Driver PCB

1) Open the front cover.

2) Slide out the fixing/feeding assembly.

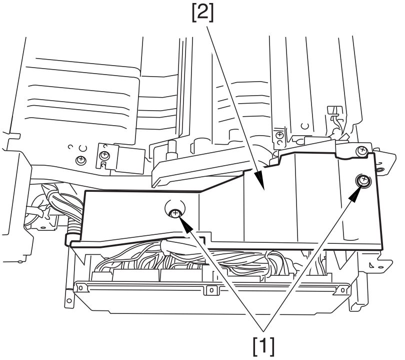
3) Remove the screw [1], and detach the handle [2].

4) Remove the 2 screws [3], and detach the fixing/feeding front cover [4].



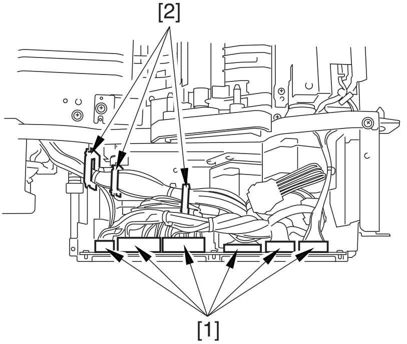
F-10-87

5) Remove the 2 screws [1], and detach the fixing/feeding upper cover [2].



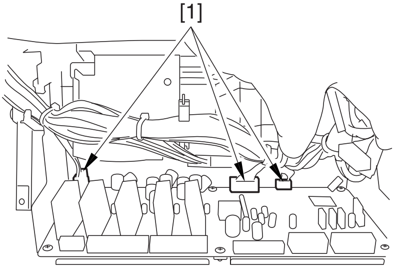
F-10-88

6) Disconnect the 6 connectors [1], and open the 3 wire saddles [2].



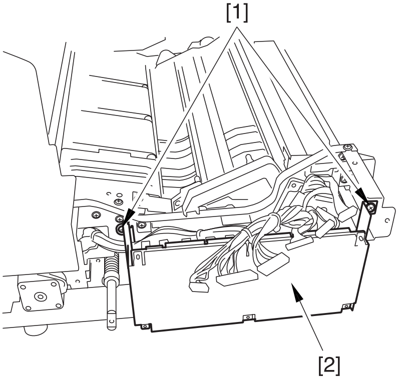
F-10-89

7) Disconnect the 3 connectors [1].



F-10-90

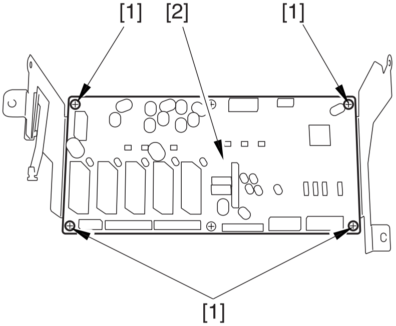
8) Remove the 2 screws [1], and shift the fixing/feeding driver PCB [2] toward the front to detach.



F-10-91

10.5.13.2 Fixing/Feeding Driver PCB

1) Remove the 4 screws [1], and detach the fixing/feeding driver PCB [2].

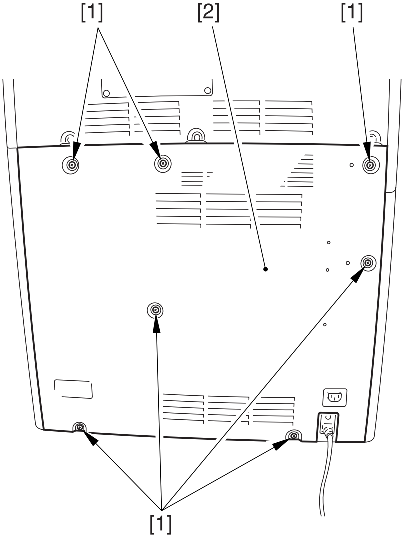


F-10-92

10.5.14 Pickup Driver PCB

10.5.14.1 Removing the Rear Cover (lower)

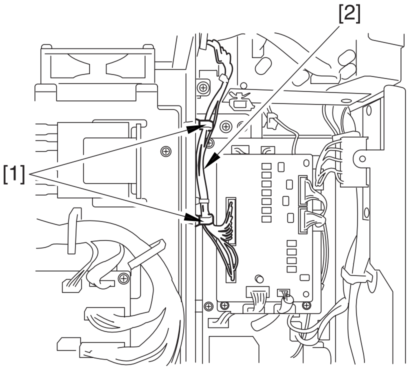
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-93

10.5.14.2 Removing the DC Power Supply Unit

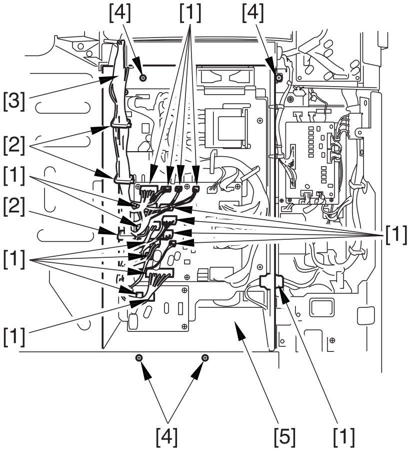
1) Open the 2 wire saddles [1], and free the harness [2].



F-10-94

2) Disconnect the 16 connectors [1], and open the 3 wire saddles [2] to free the harness [3].

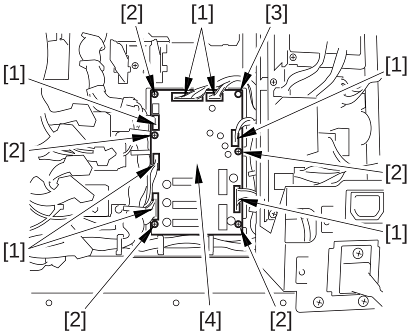
3) Remove the 4 screws [4], and detach the DC power supply unit [5].



F-10-95

10.5.14.3 Removing Pickup Driver PCB

1) Disconnect the 7 connectors [1], remove the 5 screws [2], and free the PCB support [3]; then, detach the pickup drive PCB [4].

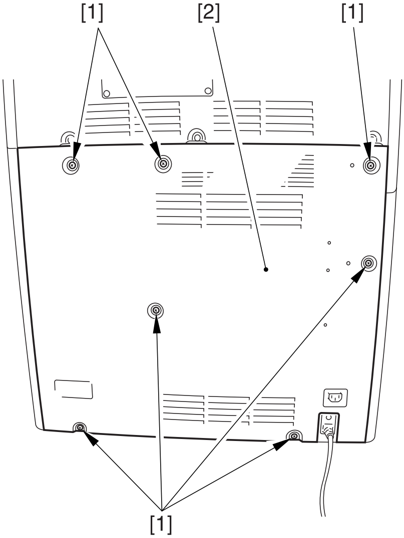


F-10-96

10.5.15 Switch PCB

10.5.15.1 Removing the Rear Cover (lower)

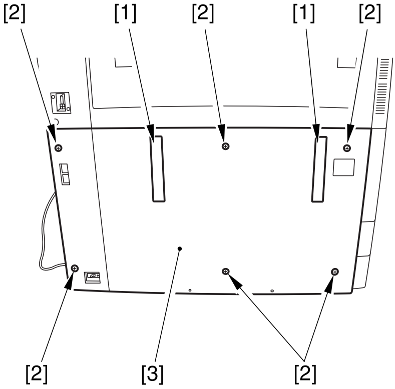
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-97

10.5.15.2 Removing the Left Cover (lower)

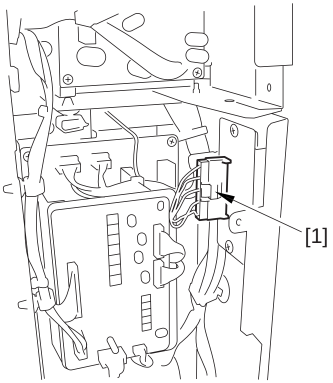
1) Remove the 2 grip covers [1].
2) Remove the 6 screws [2], and detach the left cover (lower) [3].



F-10-98

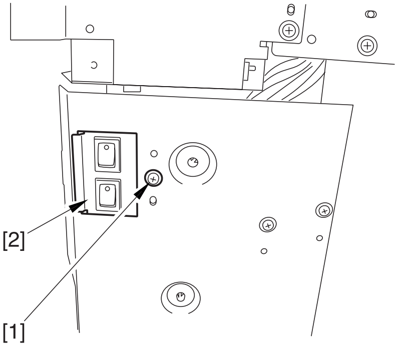
10.5.15.3 Removing the Switch PCB

1) Disconnect the connector [1].



F-10-99

2) Remove the screw [1], and detach the switch PCB [2].



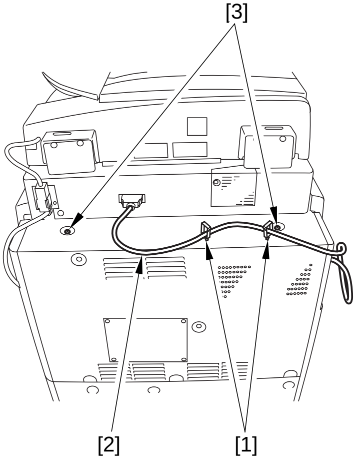
F-10-100

10.5.16 Primary Exhaust Fan

10.5.16.1 Removing the Rear Cover (upper)

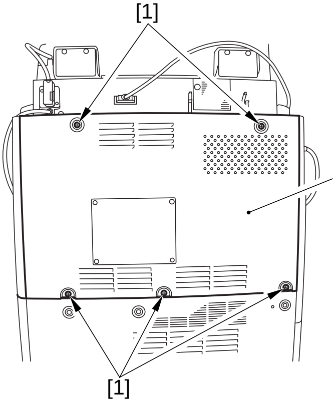
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-10-101

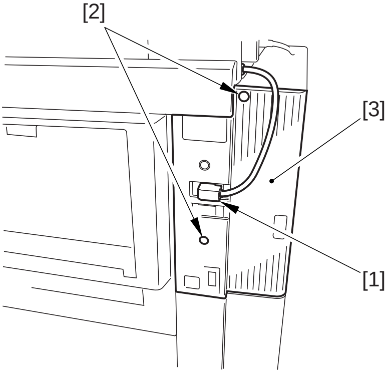
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-10-102

10.5.16.2 Removing the Right Cover (Upper rear)

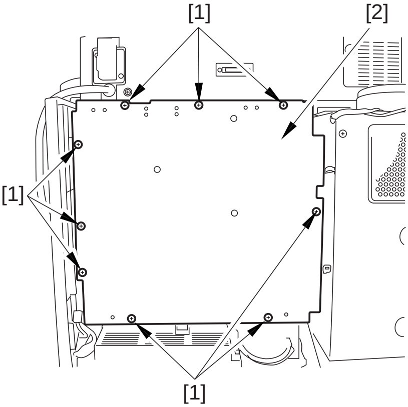
1) Detach the reader communications cable [1].
2) Remove the 2 screws [2], and detach the right cover (upper rear) [3].



F-10-103

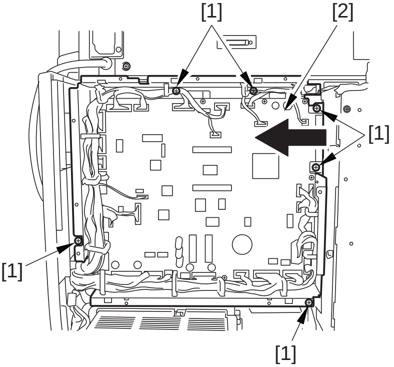
10.5.16.3 Sliding the DC Control Box

1) Remove the 9 screws [1], and detach the DC controller cover [2].



F-10-104

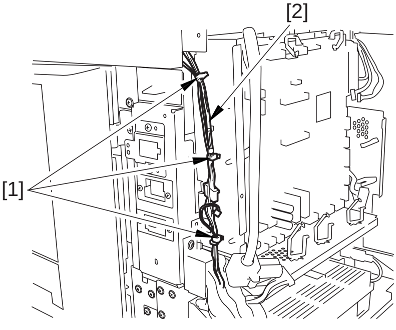
2) Remove the 6 screws [1], and slide the DC controller box [2] to the left.



F-10-105

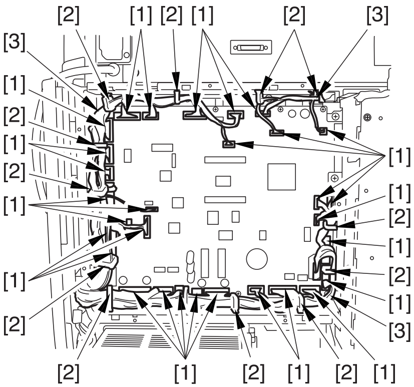
10.5.16.4 Removing the DC Controller Box

1) Open the 3 cable guides [1], and free the harness [2].



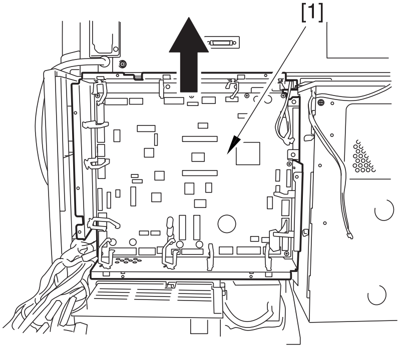
F-10-106

2) Disconnect the 33 connectors [1], and open that 13 cable guides [2]; then, free the harness [3].



F-10-107

3) Lift the DC controller box [1] to detach.

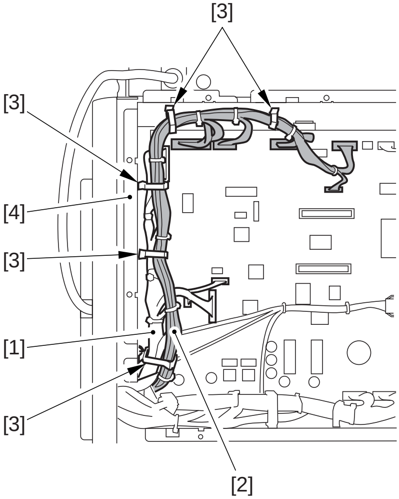


F-10-108

10.5.16.5 Points to Note When Mounting the DC Controller Box

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].
- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].

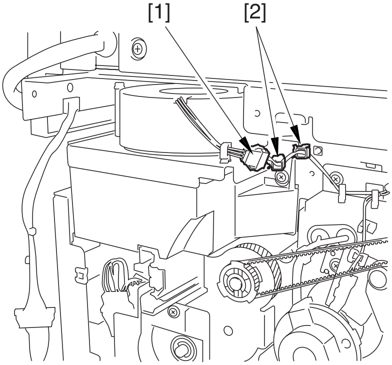


F-10-109

Supplementary Information:
If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

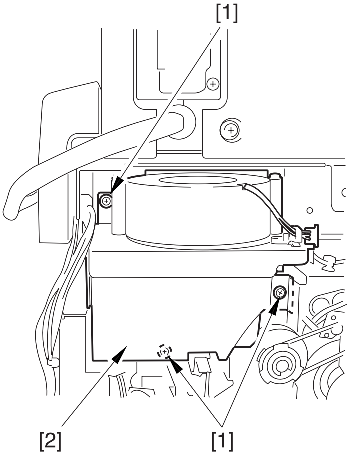
10.5.16.6 Removing the Primary Exhaust Fan

1) Disconnect the connect [1], and open the 2 cable guides [2].



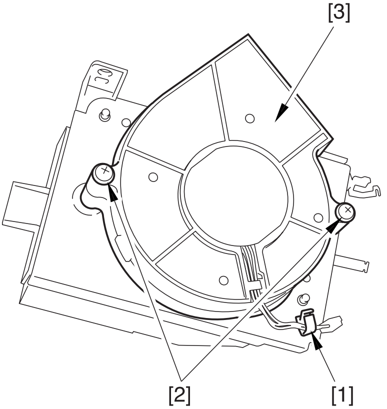
F-10-110

2) Remove the 3 screws [1], and detach the primary exhaust fan [2] together with the duct.



F-10-111

3) Open the cable guide [1], and remove the 2 screws [2]; then, detach the primary exhaust fan [3].



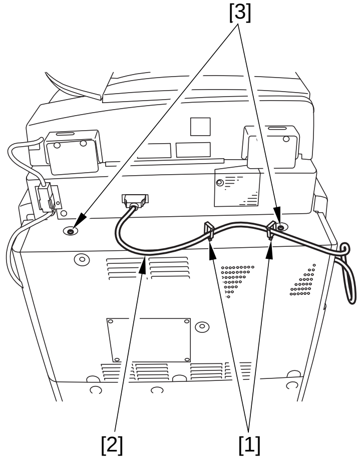
F-10-112

10.5.17 Fixing Heat Discharge Fan

10.5.17.1 Removing the Rear Cover (upper)

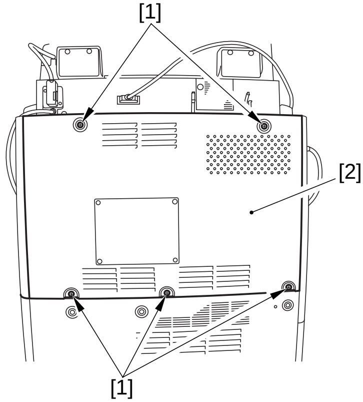
1) Free the cable [2] from the 2 cable clamps [1].

2) Remove the 2 screws [3].



F-10-113

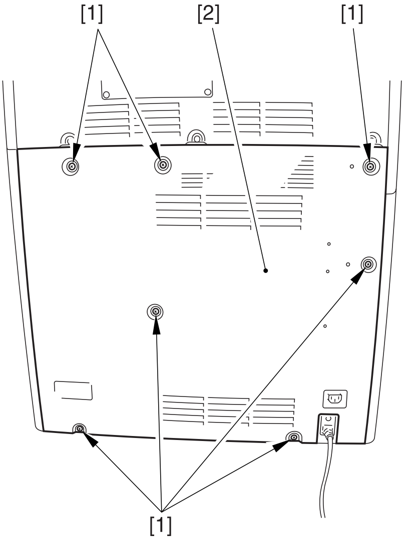
3) Remove the 5 screws [1], and detach the rear cover (upper) [2].



F-10-114

10.5.17.2 Removing the Rear Cover (lower)

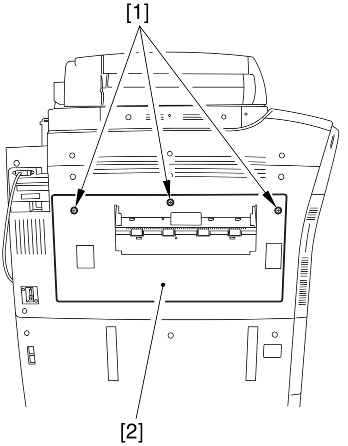
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-115

10.5.17.3 Removing the Delivery Cover

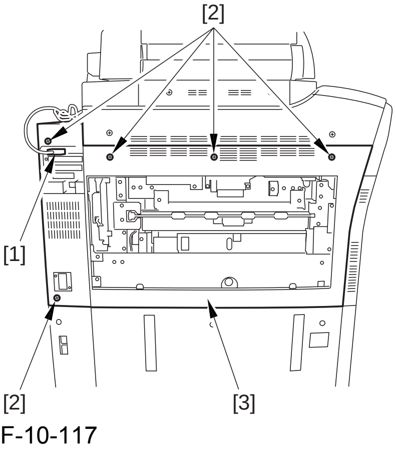
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-10-116

10.5.17.4 Removing the Left Cover (middle)

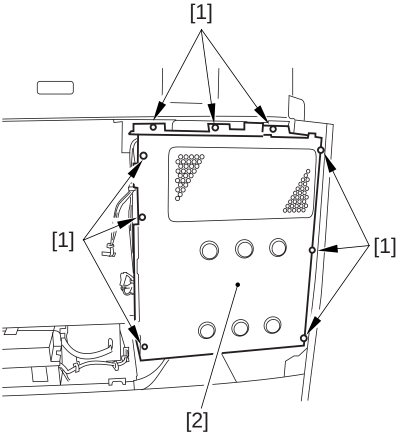
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



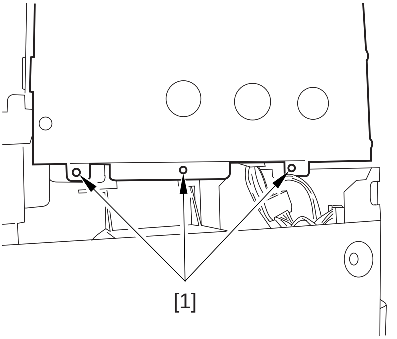
F-10-117

10.5.17.5 Removing the Controller Box Cover

1) Remove the 2 screws [1], and detach the controller box cover [2].



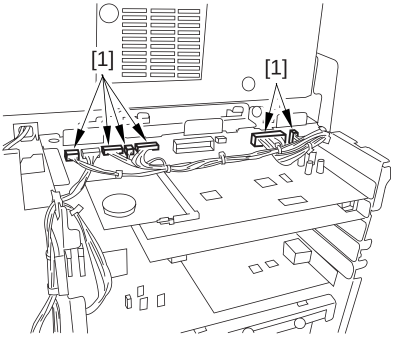
F-10-118



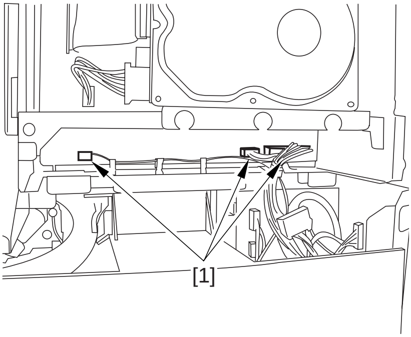
F-10-119

10.5.17.6 Removing the Controller Box

1) Disconnect the 9 connectors [1].

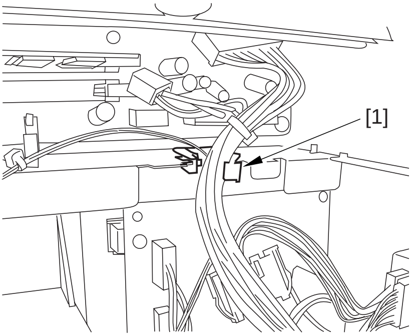


F-10-120

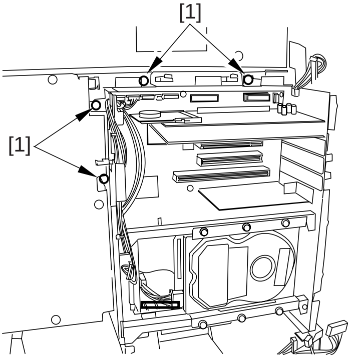


F-10-121

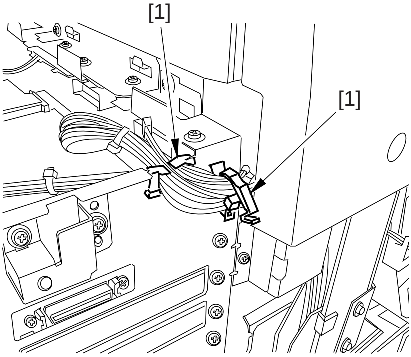
2) Free the harness from the 3 harness retainers [1].



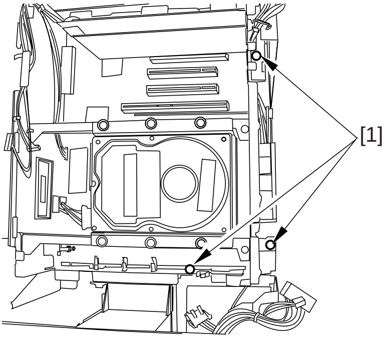
F-10-122



F-10-124

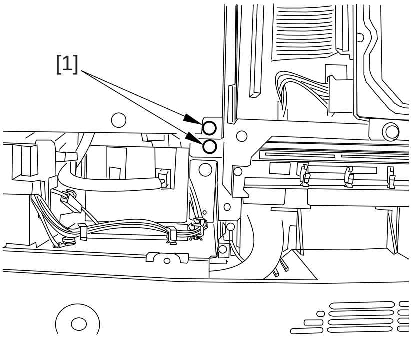


F-10-123



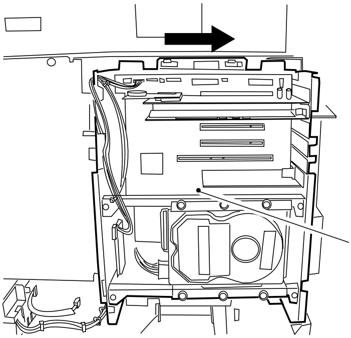
F-10-125

3) Remove the 9 screws [1] used to fix the main controller box in place.



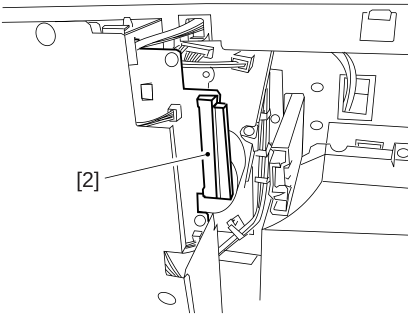
F-10-126

4) Slide the main controller box [1] toward the delivery side to detach.



F-10-127

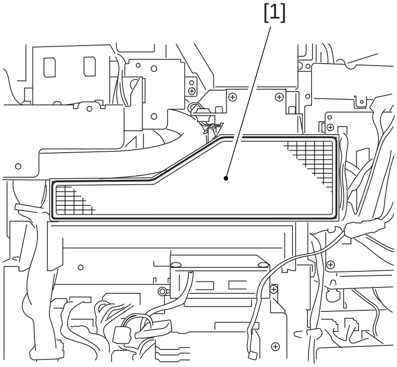
⚠ During removal/mounting, be sure to take care not to damage the connector [2] found at the joint to the DC controller PCB.



F-10-128

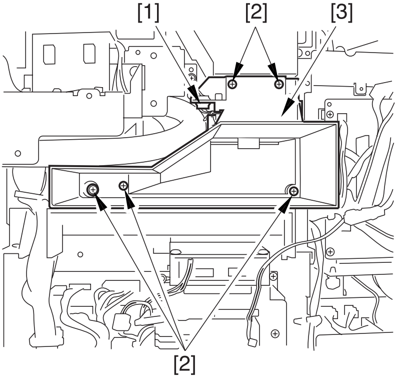
10.5.17.7 Removing the Fixing/Delivery Fan

1) Remove the fixing heat discharge ozonefilter [1].



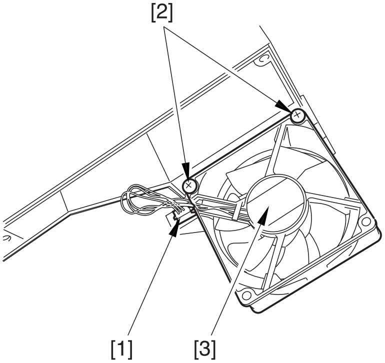
F-10-129

2) Disconnect the connector [1], and remove the 5 screws [2]; then, detach the duct [3].



F-10-130

3) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the fixing heat discharge fan [3].

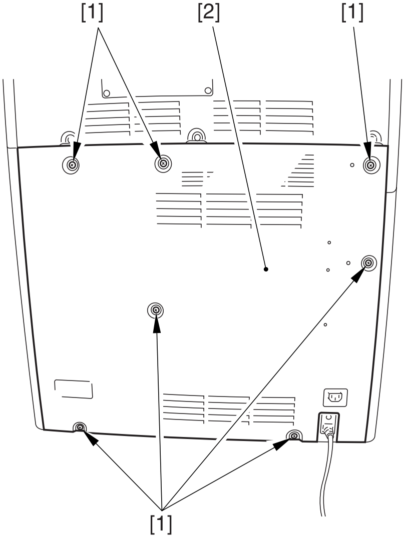


F-10-131

10.5.18 Power Supply Cooing Fan

10.5.18.1 Removing the Rear Cover (lower)

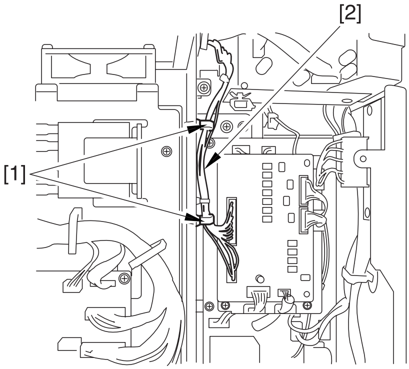
1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-132

10.5.18.2 Removing the DC Power Supply Unit

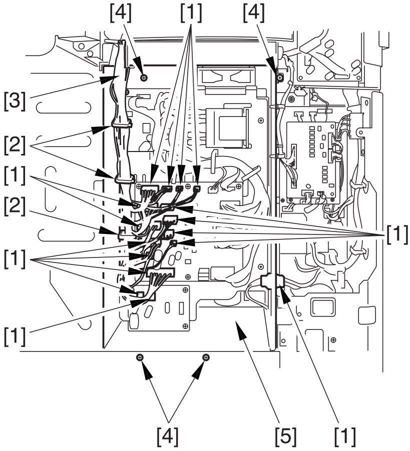
1) Open the 2 wire saddles [1], and free the harness [2].



F-10-133

2) Disconnect the 16 connectors [1], and open the 3 wire saddles [2] to free the harness [3].

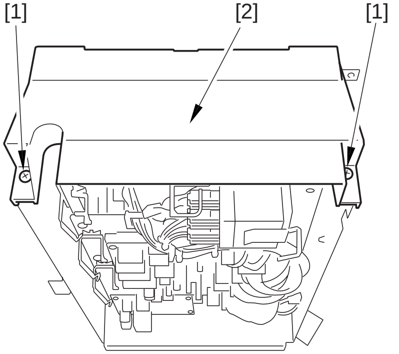
3) Remove the 4 screws [4], and detach the DC power supply unit [5].



F-10-134

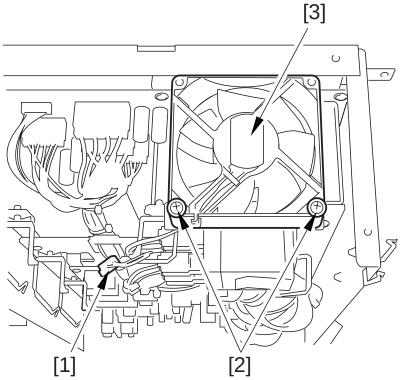
10.5.18.3 Removing the Power Supply Cooling Fan

1) Remove the 2 screws [1], and detach the power supply unit upper cover [2].



F-10-135

2) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the power supply cooling fan [3].

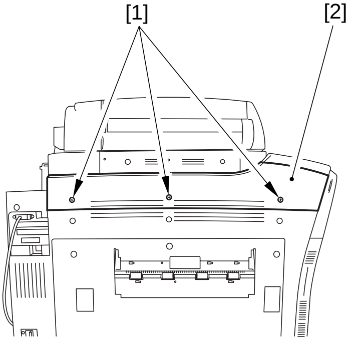


F-10-136

10.5.19 Delivery Cooling Fan 1

10.5.19.1 Removing the Left Cover (upper)

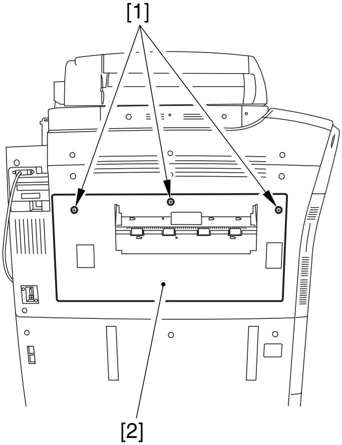
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-10-137

10.5.19.2 Removing the Delivery Cover

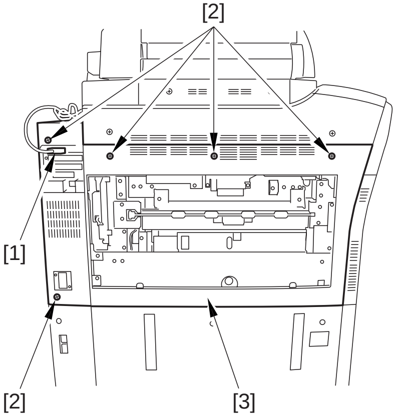
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-10-138

10.5.19.3 Removing the Left Cover (middle)

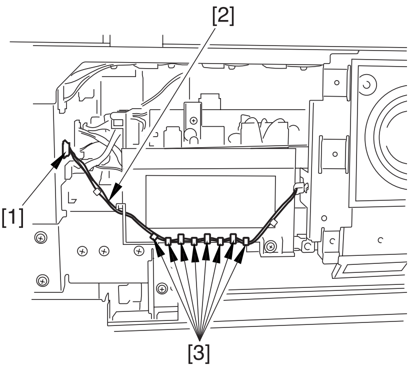
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



F-10-139

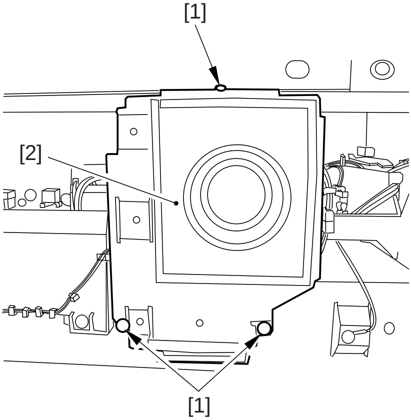
10.5.19.4 Removing the Delivery Cooling Fan 1

1) Disconnect the connector [1], and free the harness [2] from the cable guide [3].



F-10-140

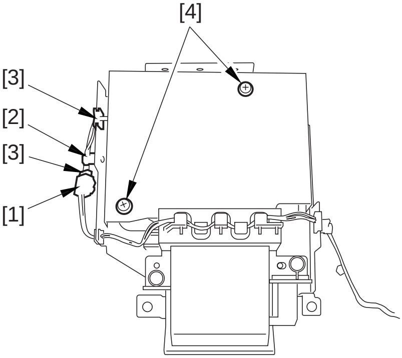
2) Remove the 3 screws [1], and detach the delivery cooling fan [2].



F-10-141

3) Disconnect the connector [1], and free the harness [2] from the cable guide [3].

4) Remove the 2 screws [4], and detach the delivery cooling fan 1.



F-10-142

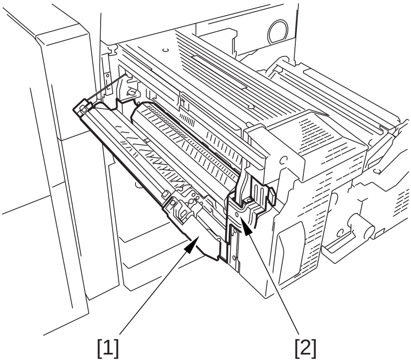
10.5.20 Delivery Cooling Fan 2

10.5.20.1 Removing the Fixing Front Cover

1) Open the font cover.

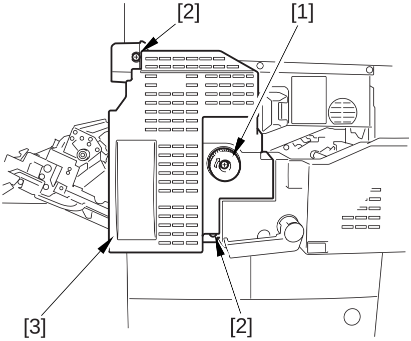
2) Slide out the fixing/feeding assembly.

3) Open the re reversal delivery cover [1] and the middle cover [2].



F-10-143

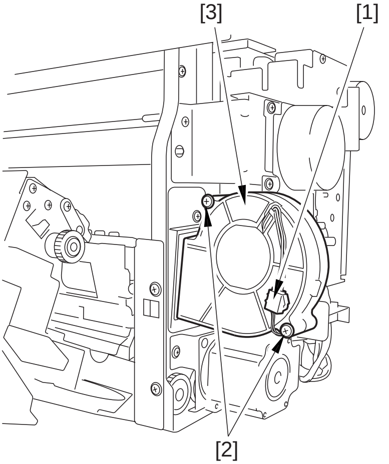
5) Remove the knob [1] and the 2 screws [2]; then, detach the fixing front cover [3].



F-10-144

10.5.20.2 Removing the Delivery Cooling Fan 2

1) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the delivery cooling fan 2 [3].

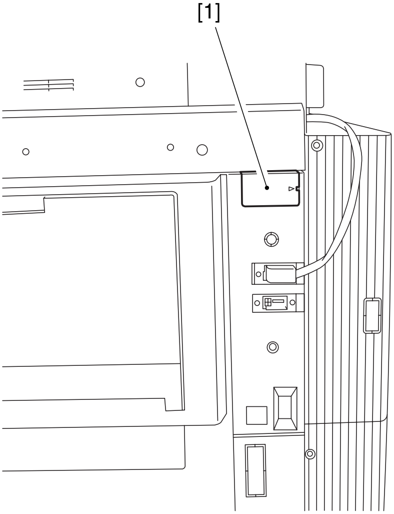


F-10-145

10.5.21 Ozone Filter

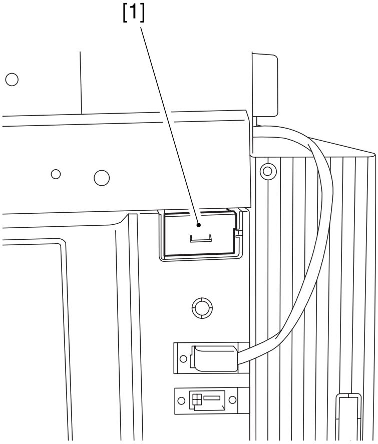
10.5.21.1 Removing the Ozone Filter

1) Remove the face cover [1] from the right cover (upper rear).



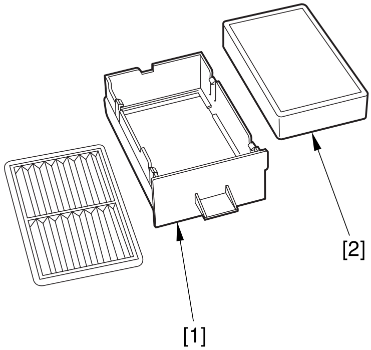
F-10-146

2) Pull out the filter holder [1].



F-10-147

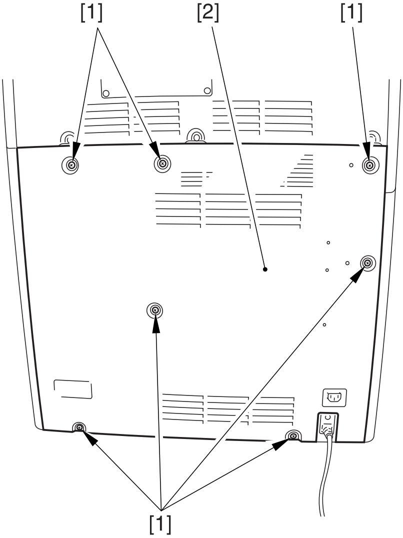
3) Detach the ozone filter [2] from the filter holder [1].



F-10-148

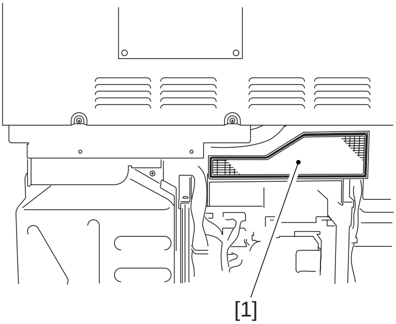
10.5.21.2 Removing the Fixing Heat Discharge Ozone Filter

1) Remove the 7 screws [1], and detach the rear cover (lower) [2].



F-10-149

2) Remove the fixing heat discharge ozone filter[1].

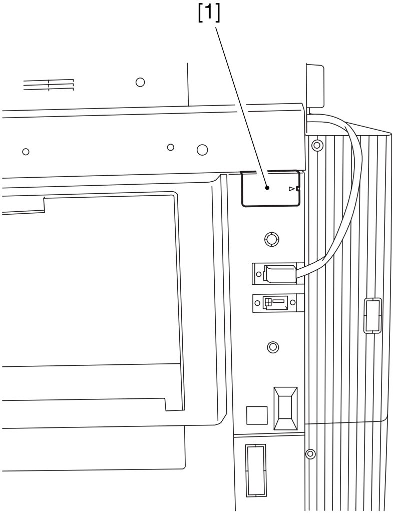


F-10-150

10.5.22 Toner Filter

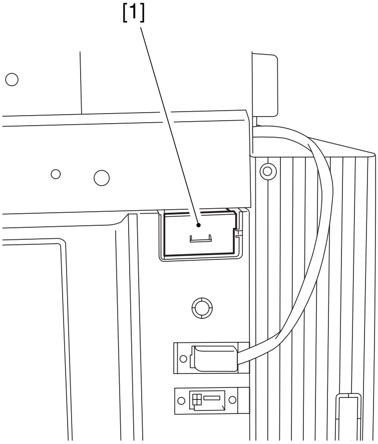
10.5.22.1 Removing the Toner Filter

1) Remove the face cover [1] from the upper rear upper cover.



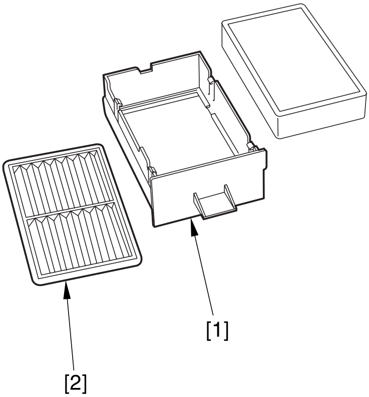
F-10-151

2) Pull out the filter holder [1].



F-10-152

3) Detach the toner filter [2] from the filter holder [1].

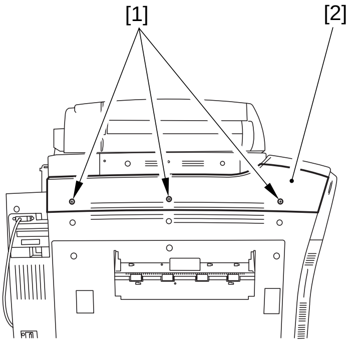


F-10-153

10.5.23 Sub Toner Filter

10.5.23.1 Removing the Left Cover (upper)

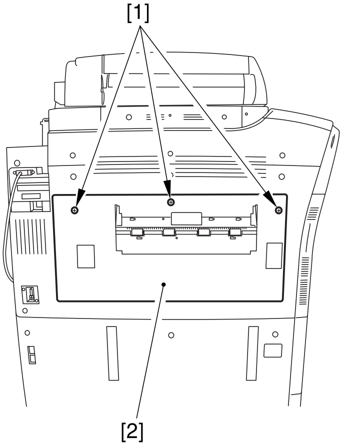
1) Remove the 3 screws [1], and detach the left cover (upper) [2].



F-10-154

10.5.23.2 Removing the Delivery Cover

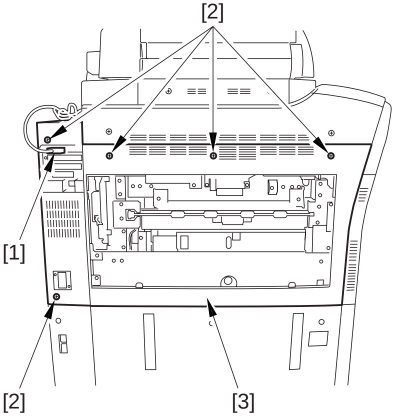
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-10-155

10.5.23.3 Removing the Left Cover (middle)

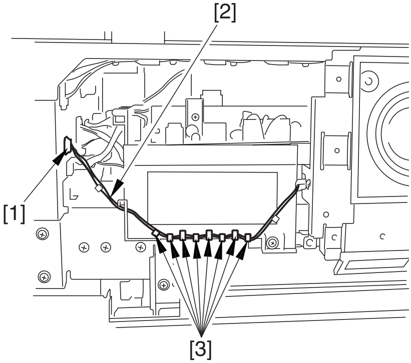
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the left cover (middle) [3].



F-10-156

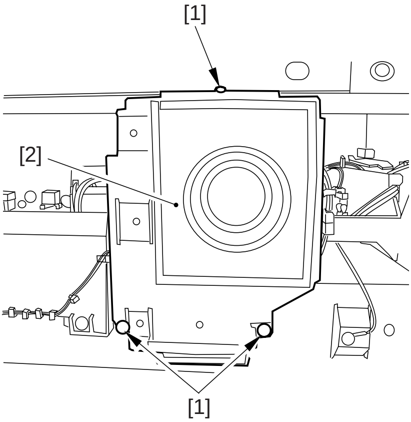
10.5.23.4 Removing the HV2 PCB

1) Disconnect the connector [1], and free the harness [2] from the cable guide [3].



F-10-157

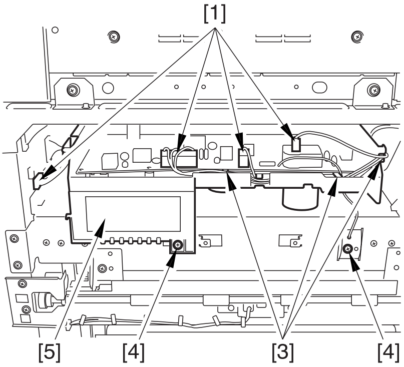
2) Remove the 3 screws [1], and detach the delivery cooling fan [2] together with its base.



F-10-158

3) Disconnect the 5 connectors [1], and free the harness from the cable guide [3].

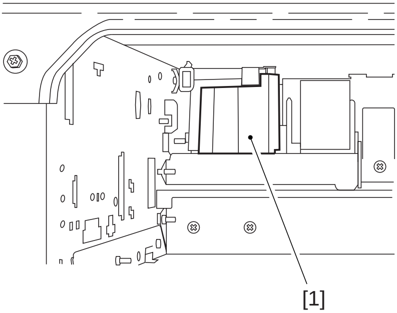
4) Remove the 2 screws [4], and detach the HV2 PCB [5].



F-10-159

10.5.23.5 Removing the Sub Toner Filter

1) Remove the sub toner filter[1].



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Chapter 11

Maintenance and Inspection

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11.1 Periodically Replaced Parts

11.1.1 Overview

Some parts of the machine must be replaced on a periodical basis for the machine to maintain a specific level of performance. They must be replaced regardless of the presence/ absence of external changes or damage, as the performance of the machine will be considerably affected once they fail.
If possible, plan any replacement to coincide with a scheduled visit.

⚠

The intervals indicated may vary depending on the site environment and user habit.

- Checking the Timing of Replacement

The timing of replacement may be checked using the following service mode items:

- Copier

COPIER>COUNTER>PRDC-1

- Accessory

COPIER>COUNTER>PRDC-2

11.1.2 Reader Unit

The machine's reader unit does not have parts that must be replaced on a periodical basis.

11.1.3 Printer Unit

T-11-1

as of March 2004

Ref.	**Parts name**	**Parts No.**	**Q'ty**	**Interval**	**Remarks**
1	Ozone filter	FC5-2486-000	1	250,000 images*	
2	Toner filter	FL2-0554-000	1	250,000 images*	
3	Primary charging wire	FB4-3687-000	AR	500,000 images*	
4	Charging wire cleaner 1	FL2-2427-000	1	500,000 images*	**

					as of March 2004
Ref.	**Parts name**	**Parts No.**	**Q'ty**	**Interval**	**Remarks**
5	Charging wire cleaner 2	FL2-2428-000	1	500,000 images*	**
6	Pre-transfer charging wire	FB4-3687-000	AR	500,000 images*	
7	Pre-transfer charging assembly wire cleaner 1	FL2-2427-000	1	500,000 images*	
8	Pre-transfer charging assembly wire cleaner 2	FL2-2428-000	1	500,000 images*	
9	Primary grid wire	FY1-0883-000	1	500,000 images*	
10	Fixing thermistor	FK2-0013-000	1	500,000 prints	
11	Pressure thermistor	FK2-0013-000	1	500,000 prints	
12	Outside heating roller thermistor	FK2-0013-000	1	500,000 prints	
13	Primary charging assembly	FM2-0429-000	1	1,000,000 images*	
14	Pre-transfer charging assembly	FM2-0427-000	1	1,000,000 images*	
15	Fixing thermal switch	FM2-0497-000	1	1,000,000 prints	
16	Pressure thermal switch	FM2-0498-000	1	1,000,000 prints	
17	Outside heating thermal switch	FM2-0499-000	1	1,000,000 prints	

* In the case of a black mono color print, counted as 1; in the case of a full color print, counted as 4 images.

** Under high humidity and high temperature condition, 100,000 images

11.2 Durables and Consumables

11.2.1 Overview

Some parts of the machine may have to be replaced once or more over the period of machine warranty because of wear or damage. Replace them as needed by referring to the table of estimated lives (expressed in terms of the number of prints they make).

Making Checks When Replacing Durables
Use the following service mode items to find out when to replace parts:

- Machine
  COPIER>COUNTER>DRBL-1
- Accessory
  COPIER>COUNTER>DRBL-2

11.2.2 Reader Unit

The machine's reader unit does not have parts that are classified as durables.

11.2.3 Printer Unit

T-11-2

					as of March 2004
Ref.	**Parts name**	**Parts No.**	**Q'ty**	**Interval**	**Remarks**
[1]	Feed roller (manual feed)	FB1-8581-000	1	120,000 prints	
[2]	Separation roller (manual feed)	FB5-0873-000	1	120,000 prints	
[3]	ITB cleaner scoop-up sheet	FL2-0411-000	1	150,000 prints	
[4]	Secondary transfer static eliminator holder	FL2-0598-000	1	150,000 prints	
[5]	Fixing roller	FC5-6298-000	1	150,000 prints*	
[6]	Pressure roller	FC5-6299-000	1	150,000 prints*	

					as of March 2004
Ref.	**Parts name**	**Parts No.**	**Q'ty**	**Interval**	**Remarks**
[7]	Outside heating roller	FC5-2285-000	1	150,000 prints*	
[8]	ITB cleaner blade	FC5-1662-000	1	195,000 images*2	lubricate fluorine graghite
[9]	Secondary transfer outside roller	FC5-2157-000	1	195,000 images*2	
[10]	Primary transfer roller	FC5-1660-000	1	195,000 images*2	
[11]	Cleaner blade	FC5-1788-000	1	195,000 images*2	one edge in use, lubricate fluorine graghite
[12]	Pickup roller (left/right paper deck)	FC5-2524-000	1 each	250,000 prints	
[13]	Feed roller (left/right paper deck)	FC5-2526-000	1 each	250,000 prints	
[14]	Separation roller (left/right paper deck)	FC5-2528-000	1 each	250,000 prints	
[15]	Pickup roller (cassette 3/4)	FC5-2524-000	1 each	250,000 prints	
[16]	Feed roller (cassette 3/4)	FC5-2526-000	1 each	250,000 prints	
[17]	Separation roller (cassette 3/4)	FC5-2528-000	1 each	250,000 prints	
[18]	Primary transfer static eliminator	FM2-0420-000	1	300,000 images*2	
[19]	ITB	FC5-1658-000	1	300,000 images*2	
[20]	Secondary transfer inside roller	FC5-1661-000	1	300,000 prints	
[21]	Cleaner scoop-up sheet	FL2-0422-000	1	390,000 images*2	
[22]	Edge scraper	FC5-5136-000	2	500,000 images*2	

as of March 2004					
Ref.	**Parts name**	**Parts No.**	**Q'ty**	**Interval**	**Remarks**
[23]	Color developing assembly	FM2-0446-000	3	500,000 prints	
[24]	Fixing web	FC5-2286-000	1	500,000 prints	
[25]	Fixing heat insulating bush	FB5-3613-000	2	500,000 prints	
[26]	Delivery upper separation claw	FM2-1672-000	4	500,000 prints	
[27]	Delivery lower separation claw unit	FM2-0501-000	6	500,000 prints	
[28]	Pressure insulating bush	RB1-0325-000	2	500,000 prints	
[29]	Outside heat insulating bush	FC5-2582-000	2	500,000 prints	
[30]	ITB edge scraper	FC6-2843-000	2	600,000 images*2	
[31]	Fixing heat discharge ozone filter	FC5-6370-000	1	1,000,000 images*2	
[32]	Tner filter (inside)	FL2-0554-000	1	1,000,000 images*2	
[33]	Bk developing cylinder (black developing assembly)	FM2-0434-000	1	1,000,000 prints	
[34]	Developing roll (black developing assembly)	FC5-1863-000	2	1,000,000 prints	

*1: in the case of a color ratio of 10%; if 100%, 60,000 prints; if 0%, 180,000 prints.

*2: in the case of a black mono color print, counted as 1 image; in the case of a full color print, counted as 4 images.

11.3 Scheduled Servicing Basic Procedure

11.3.1 Scheduled Servicing Basic Procedure

⚠

- As a rule, provide scheduled servicing every 150,000 prints.
- Check with the Service Book before setting out for a scheduled service visit, and take parts for which replacement is expected.
- If the power plug is left connected for a long time in a place subject to dust, humidity, or oil smoke, a fire hazard is a possibility (i.e., the dust collecting around the plug can absorb moisture, resulting in insulating failure). Be sure to disconnect the power plug on a periodical basis, and wipe off the dust and dirt collecting around it.

<Work Procedure>

1) Report to the person in charge, and check the general condition.

2) Record the counter reading, and check the faulty prints.

3) Make the following checks, and clean/adjust the items that are indicated:

T-11-3

Items		
Text copy	against image density standard	
	for soiling of back of paper	
	for clarity of characters	
	for margin	
	for fixing	misplaced registration, soiled back of paper
	for margin standards (single-sided print)	leading edge: 4.0+1.5/-1.0mm
		left edge: 2.5+/- 1.5mm
	(double-sided print)	leading edge: 4.0+1.5/-1.0mm

Items		
		left edge: 2.5+/- 2.0mm
Feeding system	registration upper/lower roller	
	for paper lint along front edge of registration assembly	

4) Check the waste toner case.

If half full or more, dispose of the waste toner in a vinyl bag or the like for collection; or, replace the waste toner case.

⚠

- If you need to dispose of the waste toner, be sure to do so in strict accordance with the regulations imposed by the local authorities.
- Do not dispose of waste toner in a fire. Doing so may cause an explosion.

---

5) Clean the copyboard glass and the reading glass.

6) Make test copies.

7) Make sample copies.

8) Check the operation of the leakage breaker.

With the power switch at ON, push the test switch of the leakage breaker to see that it operates normally (i.e., the breaker switch shifts to the OFF side to cut off the power).
If the leakage beaker fails to operate normally, replace it, and run a check once again.

<Resetting the Breaker>
When you have made the check, turn off the main power switch, and turn on the breaker switch, and then turn the main power switch back on.

9) Put the sample copies in order, and clean up the area around the machine.

10) Record the final counter reading; at this time, be sure to fill out the blanks for 'FX-UP-RL' and 'DV-UNT-K' (service counters).

11) Fill out the Service Book, and report to the person in change. Be sure to update the history of checks on the leakage breaker in the Service Book.

11.3.2 Scheduled Servicing (reader unit)

⚠

Do not use solvents or oils other than those indicated herein.

T-11-4

Unit	**Location**	**Work**	**Intervals**	**Remarks**
Original exposure system	Copyboard glass	clean	195,000 images	clean the face, back, and the white plate on the back.
Original exposure system	ADF reading glass	clean	195,000 images	clean the back and the face.
Original exposure system	Scanner rail	clean / lubricate	as needed	
Original exposure system	Scanner mirror (No. 1 through No. 3 mirrors)	clean	195,000 images	
Original exposure system	Reflecting plate	clean	195,000 images	

⚠

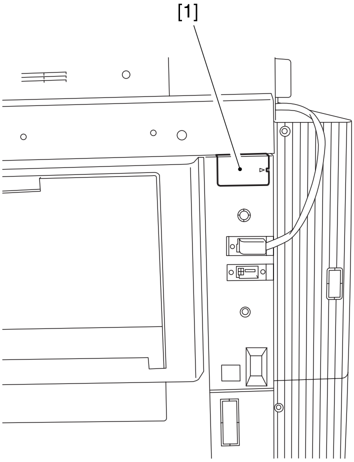
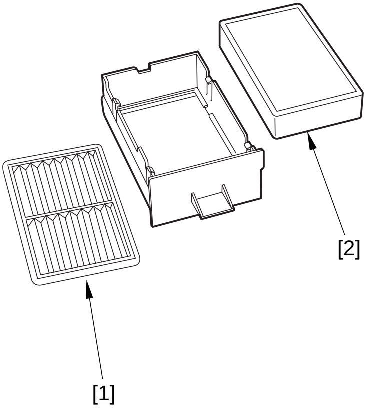
The foreign values are estimates only, and are subject to change based on future data.

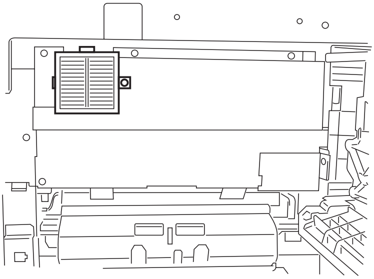
11.3.3 Scheduled Servicing (printer unit)

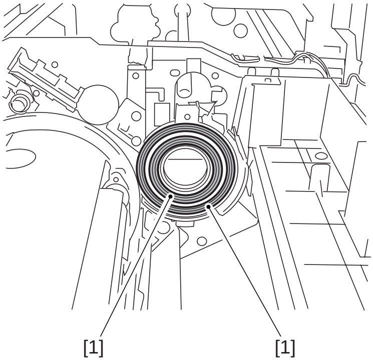
⚠

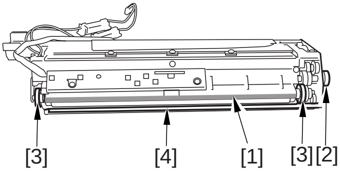
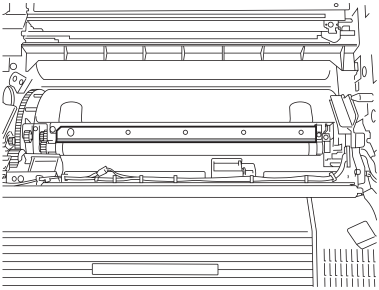
Do not use solvents or oils other than those permitted.

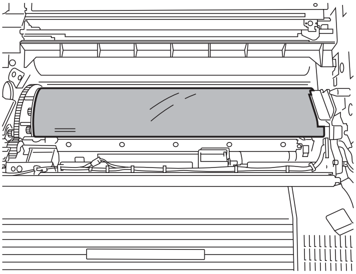
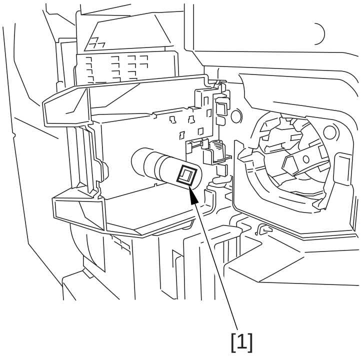
T-11-5

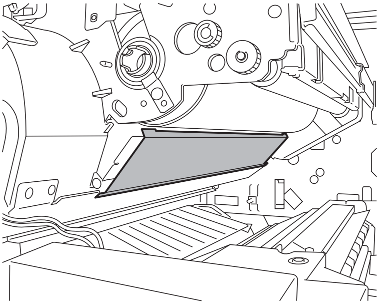
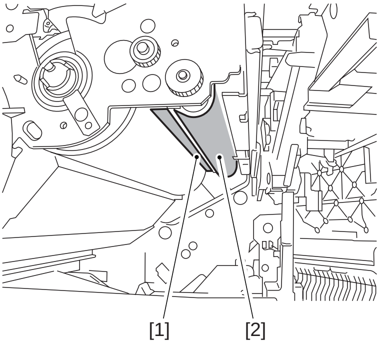
Unit	Location	Item	Interval	Remarks
Externals and controls	Ozone filter	replace	250,000 images	  [1]Toner filter [2]Ozone filter
Externals and controls	Toner filter	replace	250,000 images	

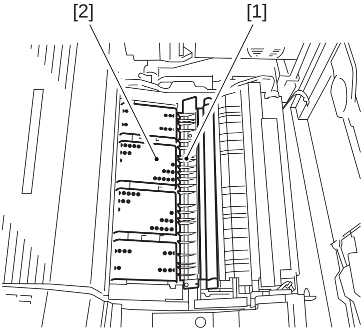
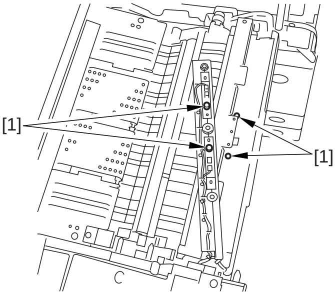
Unit	Location	Item	Interval	Remarks
Externals and controls	Dust-collecting filter (primary)	clean	250,000 prints	 inside of the right upper cover
Laser exposure system	Dust-colleting glass	clean	250,000 prints	
Charging assembly	Primary charging assembly	replace	1,000,000 images	
Charging assembly	Primary charging wire	clean	upon installation	
		replace	500,000 images	
Charging assembly	Primary grid wire	clean	upon installation, 250,000 images	
		replace	500,000 images	
Charging assembly	Charging wire cleaner 1/2 (primary changing assembly)	replace	500,000 images	

Unit	Location	Item	Interval	Remarks
Charging assembly	Pre-transfer charging assembly	replace	1,000,000 images	
Charging assembly	Pre-transfer charging wire	clean	upon installation	
		replace	500,000 images	
Charging assembly	Charging wire cleaner 1/2 (pre-transfer charging assembly)	replace	500,000 images	
Charging assembly	Charging assembly shielding plate	clean	upon installation, 250,000 images	
Photosensitive drum	Drum heater sliding area	clean/ lubricate	1,000,000 images	 Clean the terminal [1] of the slip ring using alcohol; then, apply a small amount of lubricant (FY9-6008).

Unit	Location	Item	Interval	Remarks
Photosensitive drum	Shifting the photosensitive drum phase	adjustment	250,000 imags	
Black developing assembly	Developing cylinder	check	upon installation	
Black developing assembly	Developing stray toner-blocking sheet	clean	250,000 prints	 [1]Developing stray toner-blocking sheet [2]Developing drive gear [3]Developing roll [4]Bias roller toner collection case
Black developing assembly	Developing drive gear	clean	250,000 prints	
Black developing assembly	Developing roll	clean	250,000 prints	
Black developing assembly	Bias roller toner collection case	clean	250,000 images	
Color developing assembly	Developing cylinder	check	upon installation	
Color developing assembly	Developing stray toner-blocking sheet	clean	250,000 prints	

Unit	Location	Item	Interval	Remarks
Color developing assembly	ATR sensor window	clean	250,000 images	
Color developing assembly	Color toner cartridge level sensor window	clean	250,000 images	
Color developing assembly	Developing cylinder bushing	clean	250,000 images	
Color developing assembly	Bottle cover	clean	250,000 images	
Color developing assembly	Color toner cartridge placement sensor window	clean	250,000 images	 [1]Color toner cartridge placement sensor window
Intermediate transfer assembly	Patch image sensor window	clean	250,000 images	

Unit	Location	Item	Interval	Remarks
Intermediate transfer assembly	ITB inside scraper/ roller(when replacing primary transfer roller)	clean	195,000 images	
Intermediate transfer assembly area	Pre-transfer corona assembly rail, thereunder	clean	150,000 prints	
Intermediate transfer assembly area	Scoop-up sheet base, thereunder	clean	150,000 prints	 [1]Scoop-up sheet base, thereunder [2]Cleaner container, hereunder
Intermediate transfer assembly area	Cleaner container, hereunder	clean	150,000 prints	

Unit	Location	Item	Interval	Remarks
Secondary transfer assembly	Secondary transfer rear guide	clean	150,000 prints	 [1] Secondary transfer rear guide [2] Feeding belt
Feeding assembly	Feeding belt	clean	150,000 prints	
Feeding assembly	OHP sensor	clean	250,000 prints	 [1]clean upper/lower OHP sensor using blow brush
Feeding assembly	Registration roller	clean	250,000 prints	
Feeding assembly	Registration guide	clean	250,000 prints	
Hopper assembly	Toner receptacle/ supply mouth	clean	250,000 prints	
Fixing assembly	Fixing web	check	upon installation	

Unit	Location	Item	Interval	Remarks
Fixing assembly	Fixing thermistor	clean	150,000 prints	
		replace	500,000 prints	
Fixing assembly	Pressure thermistor	clean	150,000 prints	
		replace	500,000 prints	
Fixing assembly	Outside heating roller thermistor	clean	150,000 prints	
		replace	500,000 prints	
Fixing assembly	Fixing thermal switch	clean	300,000 prints	
		replace	1,000,000 prints	
Fixing assembly	Pressure thermal switch	clean	150,000 prints	
		replace	1,000,000 prints	
Fixing assembly	Outside heating thermal switch	clean	150,000 prints	
		replace	1,000,000 prints	
Fixing assembly	Inlet guide	clean	150,000 prints	use lint-free with specified solvent.
Delivery assembly	Upper/ lower separation claw	clean	150,000 prints	use lint-free paper with specified solvent.
Waste toner collection assembly	Waste toner box	inspect	250,000 images*	

note:

The black developing cylinder need not be cleaned on a periodical basis. If you must clean the surface of the cylinder, be sure to dry wipe it with lint-free paper, NEVER using water or solvent.

*:

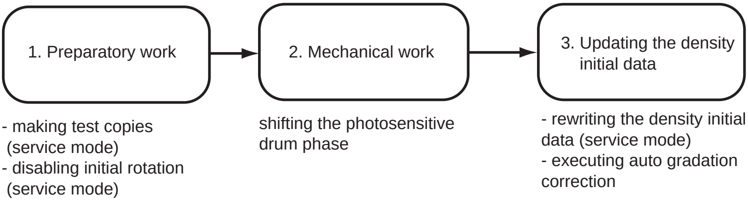
The intervals are based on a color ratio of 10% and image ratio of 5%, and thus are subject to variation depending on the actual ratios.

The foregoing values are estimates only, and are subject to change based on future data.

11.3.4 Shifting the Photosensitive Drum Phase

The photosensitive drum can develop drum memory unless the image write start position is shifted at specific intervals. Be sure to shift the drum phase every so many copies/prints have been made as shown below.

<Overview of the Work>


1. Preparatory work
2. Mechanical work
3. Updating the density initial data
- making test copies (service mode)
- disabling initial rotation (service mode)
shifting the photosensitive drum phase
- rewriting the density initial data (service mode)
- executing auto gradation correction

F-11-1

<When to Perform the Work>

- every some copies or prints made continuously
- when detaching and attaching the drum (i.e., when the initial drum phase is lost) Here,3. "Mechanical Work" in the detailed instructions is not needed. To avoid the possible discrepancy in phase, however, be sure to perform 1. "Preparatory Work" and 3. "Updating the Density Initial Data."

<Detailed Instructions>

1. Preparatory Work

1-1 Turn off the main power switch, and wait until the machine has entered a ready state.

1-2 To stabilize the machine operation, generate 5 test pattern printouts (A3, double-sided) by executing the following in service mode: COPIER>TEST>PG>TYPE=16.

⚠

Be sure not to forget to select a cassette loaded with A3 paper and double-sided printing in service mode.

- to select a particular cassette in service mode, execute COPIER>TEST>PG>PG-PICK=3 or =4.
- to select double-sided printing in service mode, execute COPIER>TEST>PG>2-SIDE=1.

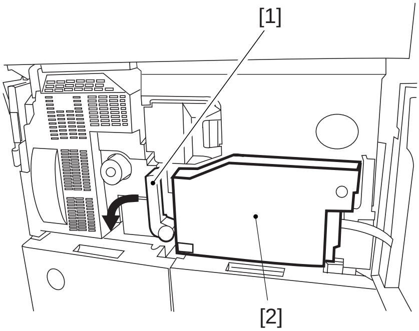
1-3 Set "1" to the following service mode to disable initial multiple rotation: COPIER>FUNCTION>INSTALL>AINR-OFF.

1-4 Turn off the main power switch.

2. Mechanical Work

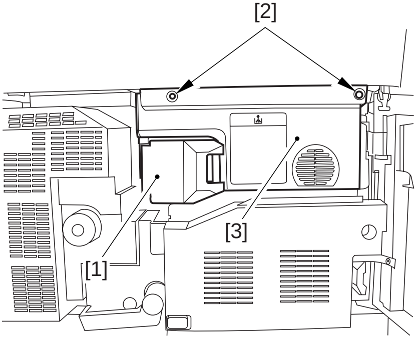
2-1 Open the front cover.

2-2 Shift down the fixing/feeding release lever [1], and draw out the fixing/feeding assembly [2] to the front.



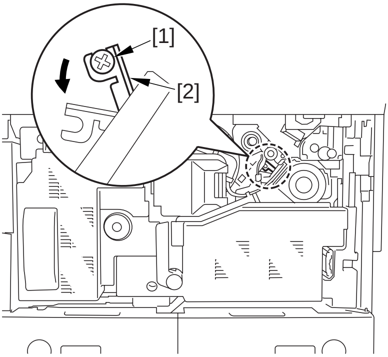
F-11-2

2-3 Open the color toner supply cover [1]. Remove the 2 screws [2], and detach the process cover [3].



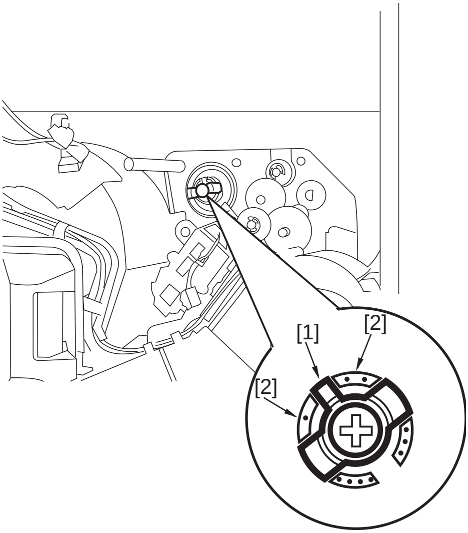
F-11-3

2-4 Remove the screw [1], and shift down the primary transfer roller locking lever [2] (so that the primary transfer roller is freed).



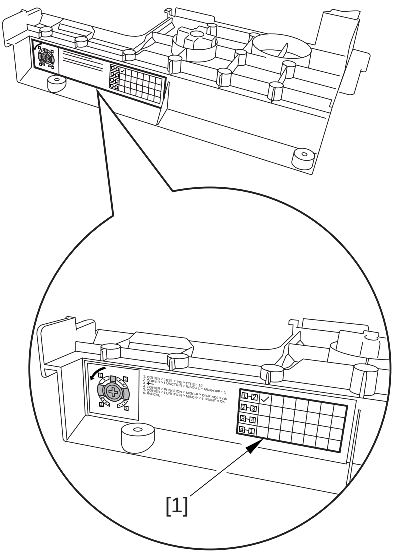
F-11-4

2-5 Check to find out the position of the marking [2] on the drum flange in relation to the protrusion [1] of the drum fixing member. (checking the drum phase)
In the figure, the marking [2] on the drum flange is at "." on the left and ".." on the right in relation to the protrusion [1] of the drum fixing member.

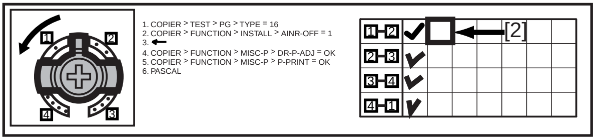


F-11-5

At this time, check the drum phase label [1] attached behind the process unit cover. If there is no check mark on the label indicating the present phase position, be sure to put a check mark.



F-11-6

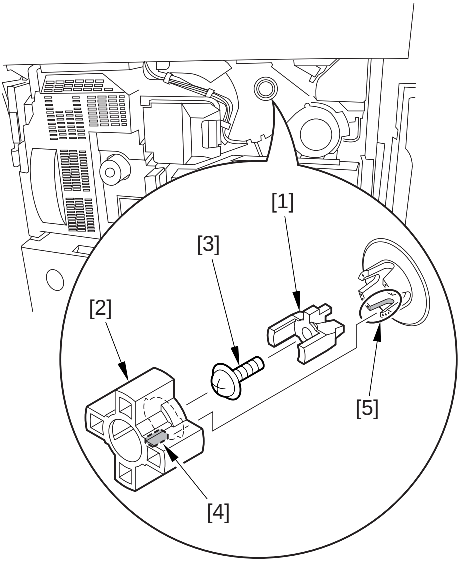

1
2
3
4
1. COPIER > TEST > PG > TYPE = 16
2. COPIER > FUNCTION > INSTALL > AINR-OFF = 1
3. ←
4. COPIER > FUNCTION > MISC-P > DR-P-ADJ = OK
5. COPIER > FUNCTION > MISC-P > P-PRINT = OK
6. PASCAL
1-2
2-3
3-4
4-1
[2]

F-11-7

2-6 Hold down the drum fixing member [1] using the drum stop tool [2]: then, using a screwdriver, remove the drum fixing screw [3].

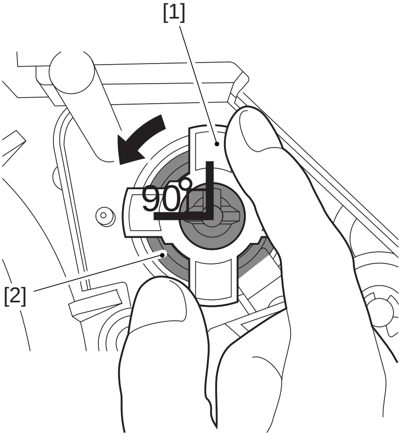
As shown, be sure to remove the screw only after matching the protrusion [4] of the drum stop tool

against the cut-off [5] of the drum flange.



F-11-8

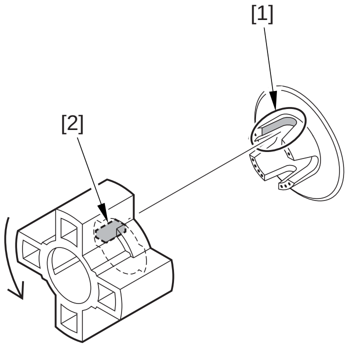
2-7 Fit the drum stop tool [1] in the drum flange [2]; then, turn the drum counterclockwise by 90 deg.



F-11-9

⚠

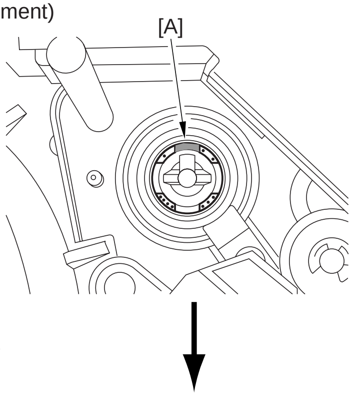
1: When fixing the tool to the flange, be sure to turn the drum only after matching the protrusion [2] of the tool against the cut-off [1] of the drum flange.



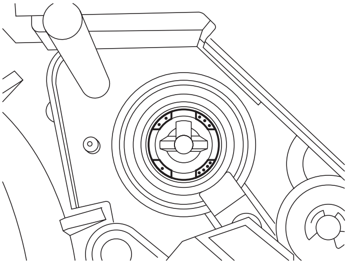
F-11-10

2: The drum phase position is identified by means of a marking of 1 to 4 dots on the flange. At time of shipment from the factory, dent A in the drum shaft is between "." and "..".
The following figures show the position of the drum flange before an after a shift is introduced:

Position of the Flange Before the Phase Is Shifted (at time of shipment)



Position of the Flange After the Phase Is Shifted (after the shift work for the first time)

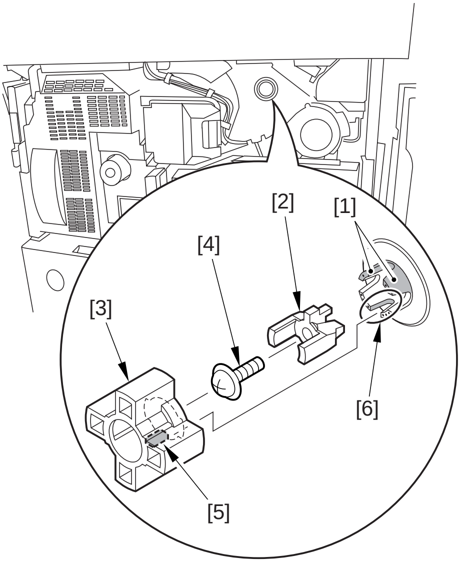


F-11-11

3: Do not shift the drum phase as part of normal work involving drawing out of the process unit.

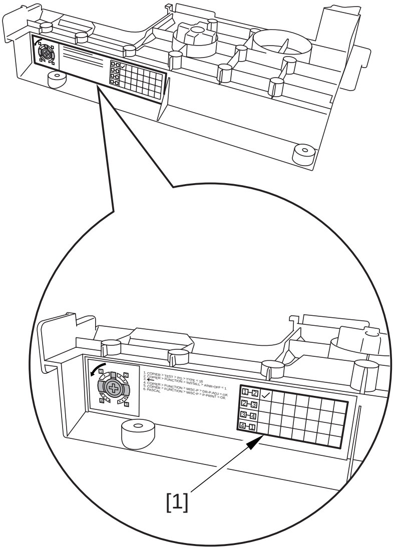
2-8 After fitting the drum fixing member [2] to the drum flange [1], hold it down from above using the drum stop tool [3]. Thereafter, tighten the drum fixing screw [4] with a screwdriver.

Be sure to fix the protrusion [5] of the drum stop tool in place with a screw after matching it against the cut-off [6] of the drum flange.



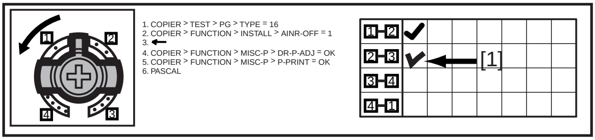
F-11-12

2-9 After checking the drum phase position, put a check mark on the drum phase label [1] attached behind the process cover.



F-11-13

⚠The following figure shows a label with a check mark indicating that the work has been performed.



1. COPIER > TEST > PG > TYPE = 16
2. COPIER > FUNCTION > INSTALL > AINR-OFF = 1
3. ←
4. COPIER > FUNCTION > MISC-P > DR-P-ADJ = OK
5. COPIER > FUNCTION > MISC-P > P-PRINT = OK
6. PASCAL

1-2	✓						
2-3	✓						
3-4							
4-1							

F-11-14

2-10 Attach the cover by performing step 2-1 through 2-4 in reverse.

3. Updating the Density Initial Data

3-1 Turn on the main power switch, and wait until the machine has entered a ready state.

3-2 Execute the following in service mode: COPIER>FUNCTION>MISC-P>DR-P-ADJ

⚠When the machine ends the service mode item normally, the setting (AINR-OFF) will automatically return to "0".

3-3 Execute the following in service mode: COPIER>FUNCTION>MISC-P>P-PRINT. Then, record the values of the following on the service label attached behind the front cover:

COPIER>ADJT>DENS>P-SGNL-Y/M/C.

⚠Store the output of P-PRINT in the service book case. If there is previous output in the case, replace it with the new output.

3-4 Execute auto gradation correction in user mode (adjust/cleaning>auto gradation correction>full correction).

⚠Be sure to perform the foregoing steps to position the drum in phase whenever you are not sure whether the drum is in correct phase.

Related Service Mode Item

1. counter mode for phase shift work: COPIER>COUNTER>MISC>DRM-PHAS

Particulars

Use it to indicate the counter reading for determining the intervals of the work. (The denominator indicates the counter reading of the work intervals, while the numerator indicates the counter reading on an actual machine).

- Settings:

00000000 to 99999999

- At Time of Shipment

denominator of counter reading:

200,000 images (Japan); 100,000 images (outside Japan)

(numerator of counter reading):

0

2. message switchover mode associated with the foregoing counter: COPIER>OPTION>BODY>DRM-DISP

Particulars

Use it to enable/disable the indication of the foregoing count reading:

Settings:0 to 2

0: disable indication

1: indicate in service mode only (factory default)

2: indicate both on User screen and in service mode

3. confirmation mode for phase shift work: COPIER>DISPLAY>ALARM-2

A record of the work will be indicated in terms of the number of times the work has been performed.

11.4 Cleaning

11.4.1 Cleaning the Secondary Transfer Rear Guide

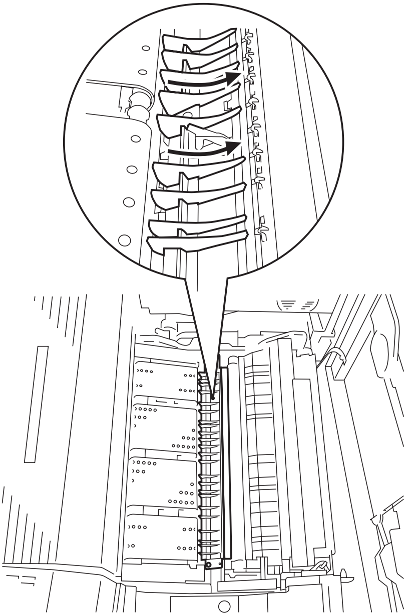
1) Open the front cover.

2) Slide out the fixing/feeding assembly.

3) Wipe the ribs one by one by moving lint-free paper moistened with alcohol in the direction of the arrow in the figure.

⚠

1. Do not dry wipe, as the ribs are likely to become charged.
2. The ribs of the secondary transfer rear guide are located near the static eliminating brush [3]; do not move the lint-free paper in the wrong direction to avoid trapping and bending the static eliminator.



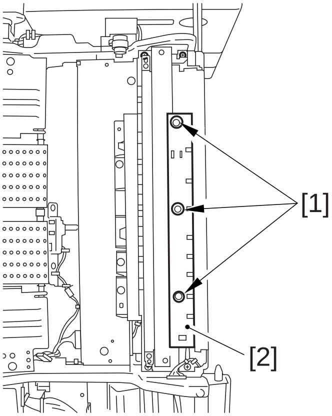
F-11-15

11.4.2 Cleaning the Registration Roller, Registration Guide, and Transparency Sensor

1) Slide out the fixing/feeding assembly.

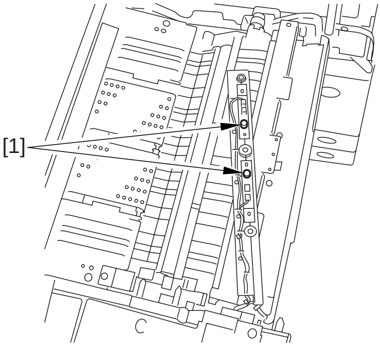
2) Push the leaf springs on both sides, and slide the fixing/feeding assembly farther out.

3) Remove the 3 screws [1], and turn overt the transparency upper sensor unit [2].



F-11-16

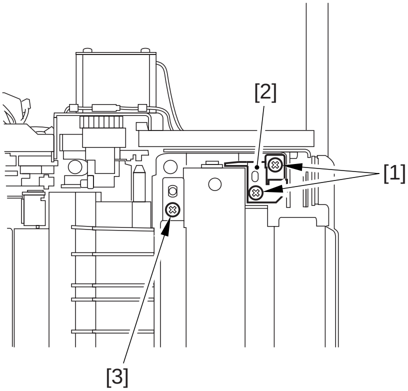
4) Remove the paper lint building up over the transparency sensor [1] using a blower brush.



F-11-17

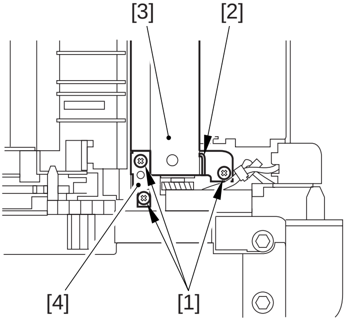
5) Remove the 2 screws [1], and detach the grounding spring [2].

6) Remove the screw [3].



F-11-18

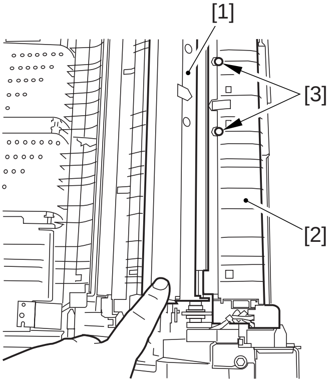
7) Remove the 3 screws [1], and detach the registration roller upper stay [3] together with the grounding spring [4] while freeing the spring [2] off its hook.



F-11-19

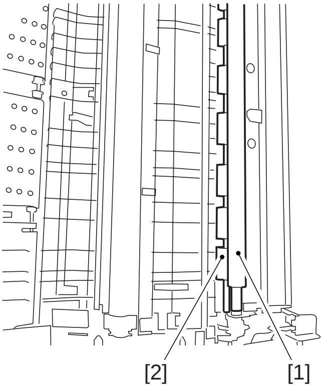
8) Open the registration upper guide [1], and clean the back [1] of the upper guide and the lower guide [2] using lint-free paper moistened with alcohol.

9) Remove the paper lint building up on the transparency sensor [3] using a blower brush.



F-11-20

10) Turn the upper registration roller [1] and the lower registration roller [2] to clean them with lint-free paper moistened with alcohol.



F-11-21

Chapter 12

Standards
and Adjustments

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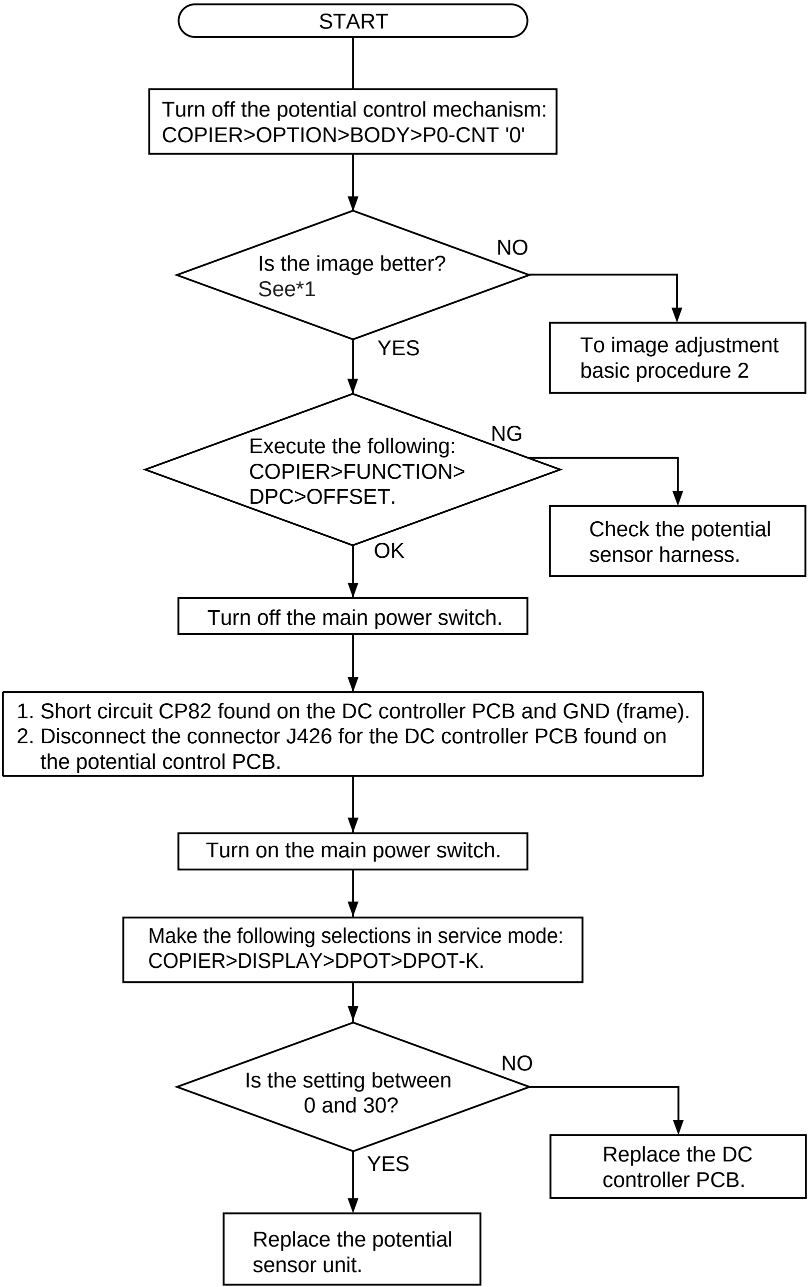
12.1 Image Adjustment Basic Procedure

12.1.1 Image Adjustment Basic Procedure 1

The image adjustment basic procedure consists of the following steps:

Image Adjustment Basic Procedure 1

No description page


START
Turn off the potential control mechanism:
COPIER>OPTION>BODY>P0-CNT '0'
Is the image better?
See*1
NO
To image adjustment basic procedure 2
YES
Execute the following:
COPIER>FUNCTION>DPC>OFFSET.
NG
Check the potential sensor harness.
OK
Turn off the main power switch.
1. Short circuit CP82 found on the DC controller PCB and GND (frame).
2. Disconnect the connector J426 for the DC controller PCB found on the potential control PCB.
Turn on the main power switch.
Make the following selections in service mode:
COPIER>DISPLAY>DPOT>DPOT-K.
Is the setting between 0 and 30?
NO
Replace the DC controller PCB.
YES
Replace the potential sensor unit.

F-12-1

*1: Make a Bk mono copy. If the said fault is absent, make a full color copy. (Be sure not to make more than 5 full color copies.)

<At the End of the Work>

When done, go through he following so that the machine is ready to generate images of optimum quality.

1) Enable the potential control mechanism in service mode (set '1' to the following, and execute the item: COPIER>option>PO-CNT).

2) Execute image stabilization control in service mode (i.e., execute COPIER>FUNCTION>MISC-P>INTR-EX).

3) If the sure to execute full correction in user mode (under auto gradation correction) to ensure optimum density.

⚠When done, be sure to set '1' to the service mode item (potential control function); otherwise, image faults can occur.

12.1.2 Image Adjustment Basic Procedure 2

Image Adjustment Basic Procedure 2

<Check the Primary / Grid output>

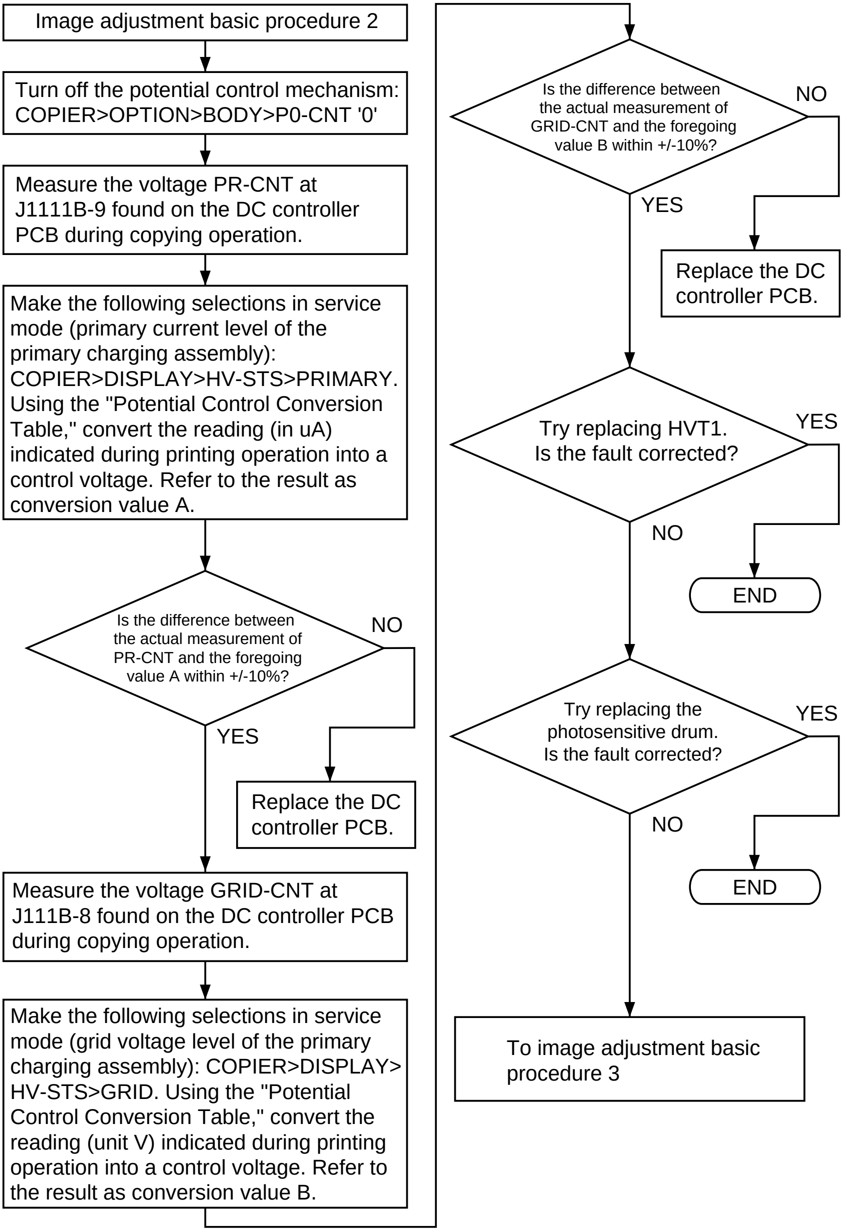


Image adjustment basic procedure 2

Turn off the potential control mechanism: COPIER>OPTION>BODY>P0-CNT '0'

Measure the voltage PR-CNT at J1111B-9 found on the DC controller PCB during copying operation.

Make the following selections in service mode (primary current level of the primary charging assembly): COPIER>DISPLAY>HV-STS>PRIMARY. Using the "Potential Control Conversion Table," convert the reading (in uA) indicated during printing operation into a control voltage. Refer to the result as conversion value A.

Is the difference between the actual measurement of PR-CNT and the foregoing value A within +/-10%?

Replace the DC controller PCB.

Measure the voltage GRID-CNT at J111B-8 found on the DC controller PCB during copying operation.

Make the following selections in service mode (grid voltage level of the primary charging assembly): COPIER>DISPLAY> HV-STS>GRID. Using the "Potential Control Conversion Table," convert the reading (unit V) indicated during printing operation into a control voltage. Refer to the result as conversion value B.

Is the difference between the actual measurement of GRID-CNT and the foregoing value B within +/-10%?

Replace the DC controller PCB.

Try replacing HVT1. Is the fault corrected?

Try replacing the photosensitive drum. Is the fault corrected?

To image adjustment basic procedure 3

F-12-2

12.1.3 Image Adjustment Basic Procedure 3

Image Adjustment Basic Procedure 3

<Check the Laser output>

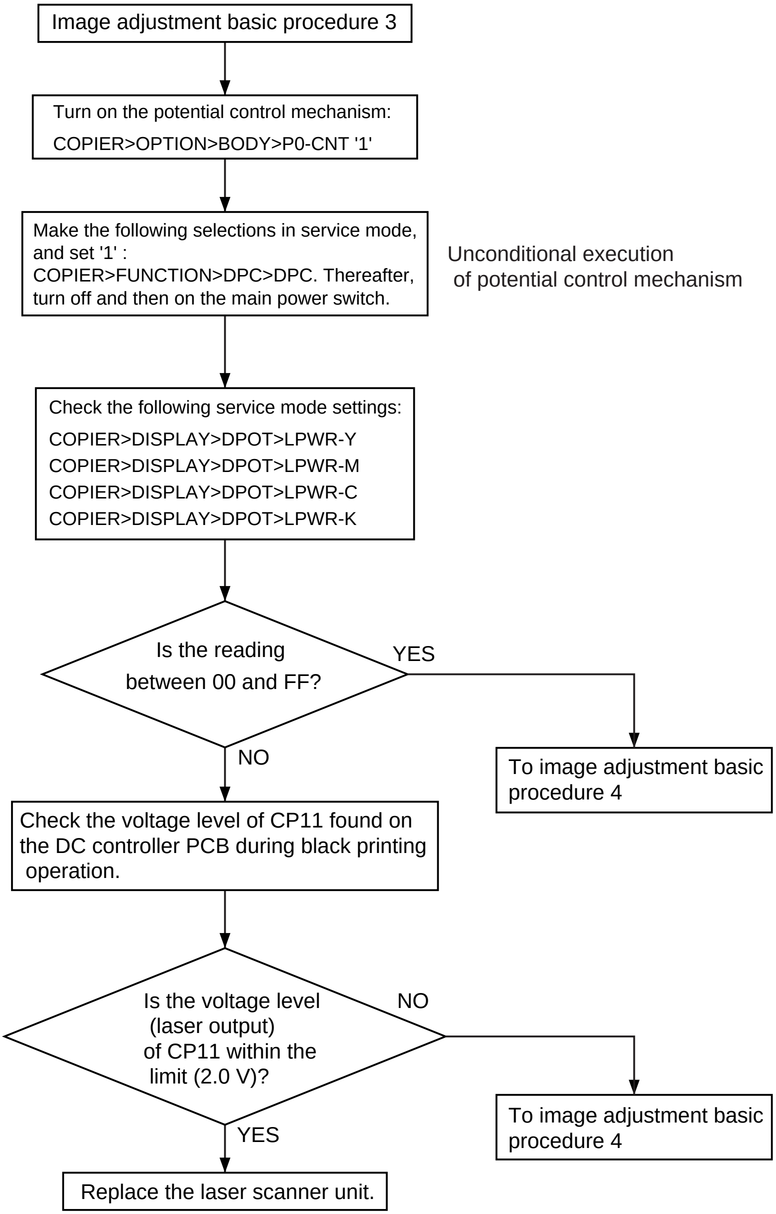


Image adjustment basic procedure 3
Turn on the potential control mechanism:
COPIER>OPTION>BODY>P0-CNT '1'
Make the following selections in service mode, and set '1' :
COPIER>FUNCTION>DPC>DPC. Thereafter, turn off and then on the main power switch.
Unconditional execution of potential control mechanism
Check the following service mode settings:
COPIER>DISPLAY>DPOT>LPWR-Y
COPIER>DISPLAY>DPOT>LPWR-M
COPIER>DISPLAY>DPOT>LPWR-C
COPIER>DISPLAY>DPOT>LPWR-K
Is the reading between 00 and FF?
YES
To image adjustment basic procedure 4
NO
Check the voltage level of CP11 found on the DC controller PCB during black printing operation.
Is the voltage level (laser output) of CP11 within the limit (2.0 V)?
NO
To image adjustment basic procedure 4
YES
Replace the laser scanner unit.

F-12-3

12.1.4 Image Adjustment Basic Procedure 4

Image Adjustment Basic Procedure 4

F-12-3

<Check the Developing output>

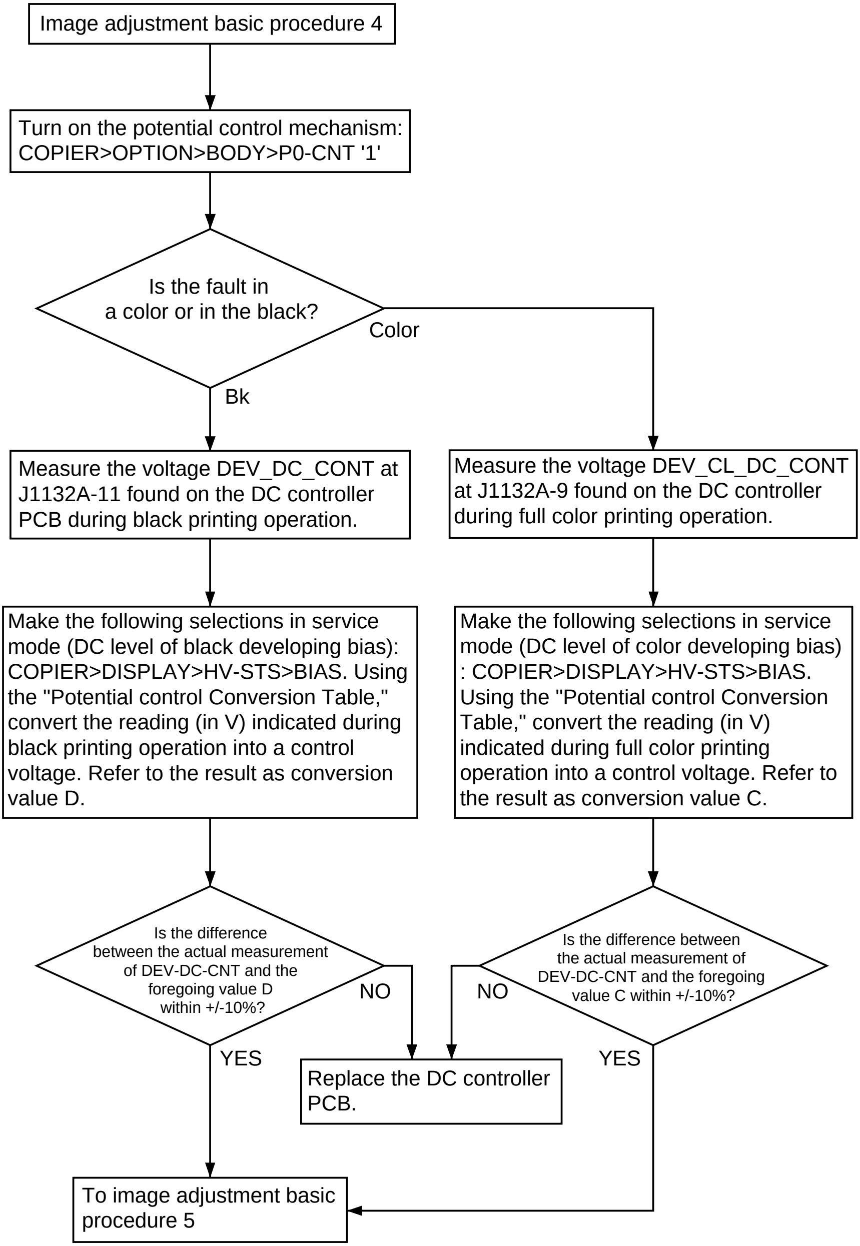


Image adjustment basic procedure 4
Turn on the potential control mechanism: COPIER>OPTION>BODY>P0-CNT '1'
Is the fault in a color or in the black?
Color
Bk
Measure the voltage DEV_DC_CONT at J1132A-11 found on the DC controller PCB during black printing operation.
Measure the voltage DEV_CL_DC_CONT at J1132A-9 found on the DC controller during full color printing operation.
Make the following selections in service mode (DC level of black developing bias): COPIER>DISPLAY>HV-STS>BIAS. Using the "Potential control Conversion Table," convert the reading (in V) indicated during black printing operation into a control voltage. Refer to the result as conversion value D.
Make the following selections in service mode (DC level of color developing bias) : COPIER>DISPLAY>HV-STS>BIAS. Using the "Potential control Conversion Table," convert the reading (in V) indicated during full color printing operation into a control voltage. Refer to the result as conversion value C.
Is the difference between the actual measurement of DEV-DC-CNT and the foregoing value D within +/-10%?
NO
YES
Is the difference between the actual measurement of DEV-DC-CNT and the foregoing value C within +/-10%?
NO
YES
Replace the DC controller PCB.
To image adjustment basic procedure 5

F-12-4

12.1.5 Image Adjustment Basic Procedure 5

Image Adjustment Basic Procedure 5

<Check the Primary transfer output>

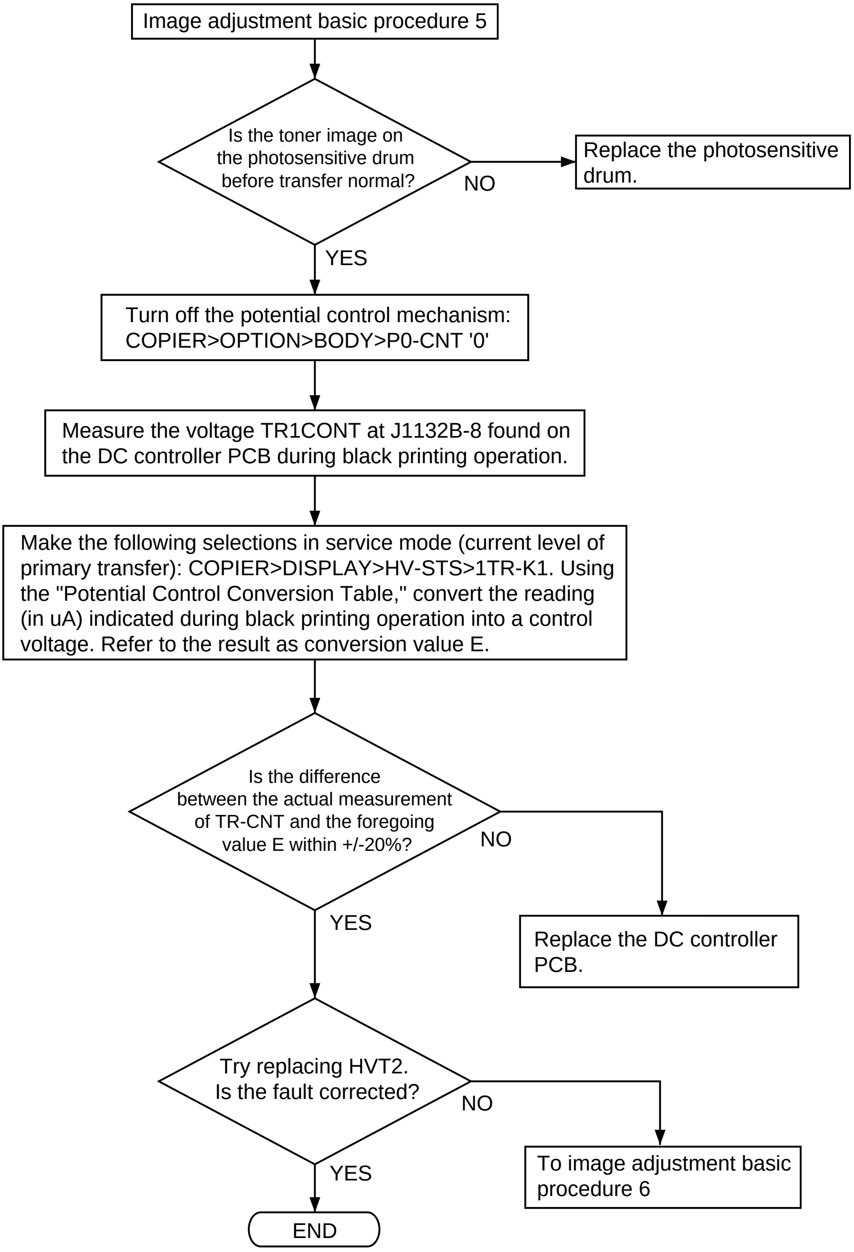


Image adjustment basic procedure 5
Is the toner image on the photosensitive drum before transfer normal?
NO
Replace the photosensitive drum.
YES
Turn off the potential control mechanism: COPIER>OPTION>BODY>P0-CNT '0'
Measure the voltage TR1CONT at J1132B-8 found on the DC controller PCB during black printing operation.
Make the following selections in service mode (current level of primary transfer): COPIER>DISPLAY>HV-STS>1TR-K1. Using the "Potential Control Conversion Table," convert the reading (in uA) indicated during black printing operation into a control voltage. Refer to the result as conversion value E.
Is the difference between the actual measurement of TR-CNT and the foregoing value E within +/-20%?
NO
Replace the DC controller PCB.
YES
Try replacing HVT2. Is the fault corrected?
NO
To image adjustment basic procedure 6
YES
END

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12.1.6 Image Adjustment Basic Procedure 6

Image Adjustment Basic Procedure 6

F-12-5

<Check the Secondary output>

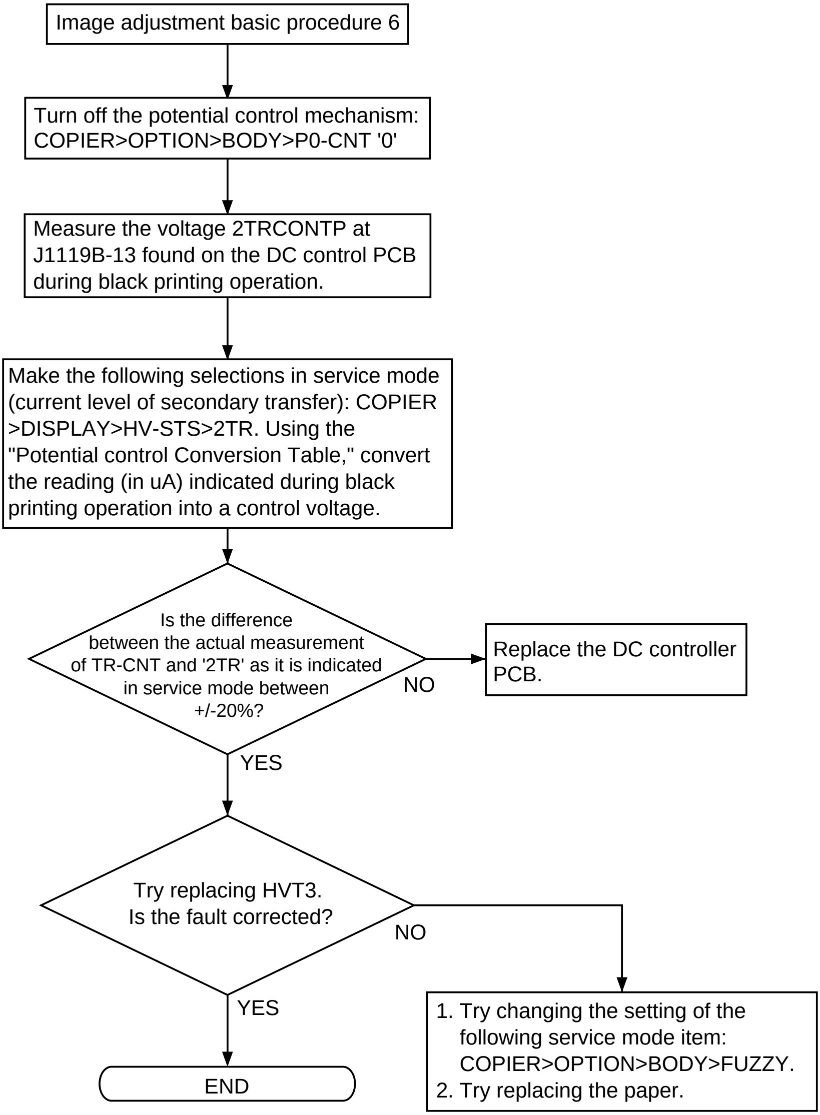


Image adjustment basic procedure 6

Turn off the potential control mechanism:
COPIER>OPTION>BODY>P0-CNT '0'

Measure the voltage 2TRCONTP at J1119B-13 found on the DC control PCB during black printing operation.

Make the following selections in service mode (current level of secondary transfer): COPIER >DISPLAY>HV-STS>2TR. Using the "Potential control Conversion Table," convert the reading (in uA) indicated during black printing operation into a control voltage.

Is the difference between the actual measurement of TR-CNT and '2TR' as it is indicated in service mode between +/-20%?

Replace the DC controller PCB.

Try replacing HVT3.
Is the fault corrected?

END

1. Try changing the setting of the following service mode item: COPIER>OPTION>BODY>FUZZY.
2. Try replacing the paper.

F-12-6

12.1.7 Potential Control Conversion Table

Potential Control Conversion Table

T-12-1

Control voltage (V)	Primary (uA)	Grid (V)	Color development (V)	Black development (V)	Primary transfer (uA)	Secondary transfer (uA)
1.031	1395.5	2.6	1.7	2	0	99.4
1.078	1388.9	6.8	4.1	5.8	0	98.9
1.125	1382.3	11.1	6.5	9.5	3	98.5
1.172	1375.7	15.3	8.8	13.3	3.6	98
1.219	1369.1	19.5	11.2	17	4.1	97.5
1.266	1362.6	23.8	13.5	20.8	4.7	97.1
1.313	1356	28	15.9	24.5	5.2	96.6
1.359	1349.4	32.2	18.2	28.3	5.8	96.1
1.406	1342.8	36.4	20.6	32.1	6.3	95.7
1.453	1336.3	40.7	22.9	35.8	6.9	95.2
1.5	1329.7	44.9	25.3	39.6	7.4	94.7
1.547	1323.1	49.1	27.6	43.3	8	94.3
1.594	1316.5	53.4	30	47.1	8.6	93.8
1.641	1310	57.6	32.3	50.8	9.1	93.3
1.688	1303.4	61.8	34.7	54.6	9.7	92.9
1.734	1296.8	66.1	37	58.3	10.2	92.4
1.781	1290.2	70.3	39.4	62.1	10.8	91.9
1.828	1283.7	74.5	41.7	65.9	11.3	91.5
1.875	1277.1	78.8	44.1	69.6	11.9	91
1.922	1270.5	83	46.4	73.4	12.4	90.5
1.969	1263.9	87.2	48.8	77.1	13	90
2.016	1257.3	91.5	51.1	80.9	13.5	89.6
2.063	1250.8	95.7	53.5	84.6	14.1	89.1

Control voltage (V)	**Primary (uA)**	**Grid (V)**	**Color development (V)**	**Black development (V)**	**Primary transfer (uA)**	**Secondary transfer (uA)**
2.109	1244.2	99.9	55.8	88.4	14.7	88.6
2.156	1237.6	104.1	58.2	92.2	15.2	88.2
2.203	1231	108.4	60.6	95.9	15.8	87.7
2.25	1224.5	112.6	62.9	99.7	16.3	87.2
2.297	1217.9	116.8	65.3	103.4	16.9	86.8
2.344	1211.3	121.1	67.6	107.2	17.4	86.3
2.391	1204.7	125.3	70	110.9	18	85.8
2.438	1198.2	129.5	72.3	114.7	18.5	85.4
2.484	1191.6	133.8	74.7	118.5	19.1	84.9
2.531	1185	138	77	122.2	19.6	84.4
2.578	1178.4	142.2	79.4	126	20.2	84
2.625	1171.9	146.5	81.7	129.7	20.8	83.5
2.672	1165.3	150.7	84.1	133.5	21.3	83
2.719	1158.7	154.9	86.4	137.2	21.9	82.6
2.766	1152.1	159.2	88.8	141	22.4	82.1
2.813	1145.5	163.4	91.1	144.7	23	81.6
2.859	1139	167.6	93.5	148.5	23.5	81.2
2.906	1132.4	171.9	95.8	152.3	24.1	80.7
2.953	1125.8	176.1	98.2	156	24.6	80.2
3	1119.2	180.3	100.5	159.8	25.2	79.8
3.047	1112.7	184.5	102.9	163.5	25.7	79.3
3.094	1106.1	188.8	105.2	167.3	26.3	78.8
3.141	1099.5	193	107.6	171	26.9	78.4
3.188	1092.9	197.2	109.9	174.8	27.4	77.9
3.234	1086.4	201.5	112.3	178.6	28	77.4
3.281	1079.8	205.7	114.6	182.3	28.5	77
3.328	1073.2	209.9	117	186.1	29.1	76.5
3.375	1066.6	214.2	119.4	189.8	29.6	76

Control voltage (V)	Primary (uA)	Grid (V)	Color developm ent (V)	Black developm ent (V)	Primary transfer (uA)	Secondar y transfer (uA)
3.422	1060.1	218.4	121.7	193.6	30.2	75.6
3.469	1053.5	222.6	124.1	197.3	30.7	75.1
3.516	1046.9	226.9	126.4	201.1	31.3	74.6
3.563	1040.3	231.1	128.8	204.9	31.8	74.2
3.609	1033.7	235.3	131.1	208.6	32.4	73.7
3.656	1027.2	239.6	133.5	212.4	33	73.2
3.703	1020.6	243.8	135.8	216.1	33.5	72.8
3.75	1014	248	138.2	219.9	34.1	72.3
3.797	1007.4	252.2	140.5	223.6	34.6	71.8
3.844	1000.9	256.5	142.9	227.4	35.2	71.4
3.891	994.3	260.7	145.2	231.1	35.7	70.9
3.938	987.7	264.9	147.6	234.9	36.3	70.4
3.984	981.1	269.2	149.9	238.7	36.8	69.9
4.031	974.6	273.4	152.3	242.4	37.4	69.5
4.078	968	277.6	154.6	246.2	37.9	69
4.125	961.4	281.9	157	249.9	38.5	68.5
4.172	954.8	286.1	159.3	253.7	39.1	68.1
4.219	948.3	290.3	161.7	257.4	39.6	67.6
4.266	941.7	294.6	164	261.2	40.2	67.1
4.313	935.1	298.8	166.4	265	40.7	66.7
4.359	928.5	303	168.7	268.7	41.3	66.2
4.406	921.9	307.3	171.1	272.5	41.8	65.7
4.453	915.4	311.5	173.5	276.2	42.4	65.3
4.5	908.8	315.7	175.8	280	42.9	64.8
4.547	902.2	320	178.2	283.7	43.5	64.3
4.594	895.6	324.2	180.5	287.5	44	63.9
4.641	889.1	328.4	182.9	291.3	44.6	63.4
4.688	882.5	332.6	185.2	295	45.2	62.9

Control voltage (V)	Primary (uA)	Grid (V)	Color development (V)	Black development (V)	Primary transfer (uA)	Secondary transfer (uA)
4.734	875.9	336.9	187.6	298.8	45.7	62.5
4.781	869.3	341.1	189.9	302.5	46.3	62
4.828	862.8	345.3	192.3	306.3	46.8	61.5
4.875	856.2	349.6	194.6	310	47.4	61.1
4.922	849.6	353.8	197	313.8	47.9	60.6
4.969	843	358	199.3	317.6	48.5	60.1
5.016	836.5	362.3	201.7	321.3	49	59.7
5.063	829.9	366.5	204	325.1	49.6	59.2
5.109	823.3	370.7	206.4	328.8	50.1	58.7
5.156	816.7	375	208.7	332.6	50.7	58.3
5.203	810.1	379.2	211.1	336.3	51.3	57.8
5.25	803.6	383.4	213.4	340.1	51.8	57.3
5.297	797	387.7	215.8	343.8	52.4	56.9
5.344	790.4	391.9	218.1	347.6	52.9	56.4
5.391	783.8	396.1	220.5	351.4	53.5	55.9
5.438	777.3	400.3	222.8	355.1	54	55.5
5.484	770.7	404.6	225.2	358.9	54.6	55
5.531	764.1	408.8	227.6	362.6	55.1	54.5
5.578	757.5	413	229.9	366.4	55.7	54.1
5.625	751	417.3	232.3	370.1	56.2	53.6
5.672	744.4	421.5	234.6	373.9	56.8	53.1
5.719	737.8	425.7	237	377.7	57.4	52.7
5.766	731.2	430	239.3	381.4	57.9	52.2
5.813	724.7	434.2	241.7	385.2	58.5	51.7
5.859	718.1	438.4	244	388.9	59	51.3
5.906	711.5	442.7	246.4	392.7	59.6	50.8
5.953	704.9	446.9	248.7	396.4	60.1	50.3
6	698.3	451.1	251.1	400.2	60.7	49.8

Control voltage (V)	Primary (uA)	Grid (V)	Color development (V)	Black development (V)	Primary transfer (uA)	Secondary transfer (uA)
6.047	691.8	455.4	253.4	404	61.2	49.4
6.094	685.2	459.6	255.8	407.7	61.8	48.9
6.141	678.6	463.8	258.1	411.5	62.3	48.4
6.188	672	468.1	260.5	415.2	62.9	48
6.234	665.5	472.3	262.8	419	63.5	47.5
6.281	658.9	476.5	265.2	422.7	64	47
6.328	652.3	480.7	267.5	426.5	64.6	46.6
6.375	645.7	485	269.9	430.2	65.1	46.1
6.422	639.2	489.2	272.2	434	65.7	45.6
6.469	632.6	493.4	274.6	437.8	66.2	45.2
6.516	626	497.7	276.9	441.5	66.8	44.7
6.563	619.4	501.9	279.3	445.3	67.3	44.2
6.609	612.9	506.1	281.7	449	67.9	43.8
6.656	606.3	510.4	284	452.8	68.4	43.3
6.703	599.7	514.6	286.4	456.5	69	42.8
6.75	593.1	518.8	288.7	460.3	69.6	42.4
6.797	586.5	523.1	291.1	464.1	70.1	41.9
6.844	580	527.3	293.4	467.8	70.7	41.4
6.891	573.4	531.5	295.8	471.6	71.2	41
6.938	566.8	535.8	298.1	475.3	71.8	40.5
6.984	560.2	540	300.5	479.1	72.3	40
7.031	553.7	544.2	302.8	482.8	72.9	39.6
7.078	547.1	548.4	305.2	486.6	73.4	39.1
7.125	540.5	552.7	307.5	490.4	74	38.6
7.172	533.9	556.9	309.9	494.1	74.5	38.2
7.219	527.4	561.1	312.2	497.9	75.1	37.7
7.266	520.8	565.4	314.6	501.6	75.7	37.2
7.313	514.2	569.6	316.9	505.4	76.2	36.8

Control voltage (V)	Primary (uA)	Grid (V)	Color development (V)	Black development (V)	Primary transfer (uA)	Secondary transfer (uA)
7.359	507.6	573.8	319.3	509.1	76.8	36.3
7.406	501.1	578.1	321.6	512.9	77.3	35.8
7.453	494.5	582.3	324	516.6	77.9	35.4
7.5	487.9	586.5	326.3	520.4	78.4	34.9
7.547	481.3	590.8	328.7	524.2	79	34.4
7.594	474.7	595	331	527.9	79.5	34
7.641	468.2	599.2	333.4	531.7	80.1	33.5
7.688	461.6	603.5	335.7	535.4	80.6	33
7.734	455	607.7	338.1	539.2	81.2	32.6
7.781	448.4	611.9	340.5	542.9	81.8	32.1
7.828	441.9	616.2	342.8	546.7	82.3	31.6
7.875	435.3	620.4	345.2	550.5	82.9	31.2
7.922	428.7	624.6	347.5	554.2	83.4	30.7
7.969	422.1	628.8	349.9	558	84	30.2
8.016	415.6	633.1	352.2	561.7	84.5	29.7
8.063	409	637.3	354.6	565.5	85.1	29.3
8.109	402.4	641.5	356.9	569.2	85.6	28.8
8.156	395.8	645.8	359.3	573	86.2	28.3
8.203	389.3	650	361.6	576.8	86.7	27.9
8.25	382.7	654.2	364	580.5	87.3	27.4
8.297	376.1	658.5	366.3	584.3	87.9	26.9
8.344	369.5	662.7	368.7	588	88.4	26.5
8.391	362.9	666.9	371	591.8	89	26
8.438	356.4	671.2	373.4	595.5	89.5	25.5
8.484	349.8	675.4	375.7	599.3	90.1	25.1
8.531	343.2	679.6	378.1	603	90.6	24.6
8.578	336.6	683.9	380.4	606.8	91.2	24.1
8.625	330.1	688.1	382.8	610.6	91.7	23.7

Control voltage (V)	Primary (uA)	Grid (V)	Color development (V)	Black development (V)	Primary transfer (uA)	Secondary transfer (uA)
8.672	323.5	692.3	385.1	614.3	92.3	23.2
8.719	316.9	696.5	387.5	618.1	92.8	22.7
8.766	310.3	700.8	389.8	621.8	93.4	22.3
8.813	303.8	705	392.2	625.6	94	21.8
8.859	297.2	709.2	394.6	629.3	94.5	21.3
8.906	290.6	713.5	396.9	633.1	95.1	20.9
8.953	284	717.7	399.3	636.9	95.6	20.4
9	277.5	721.9	401.6	640.6	96.2	19.9
9.047	270.9	726.2	404.0	644.4	96.7	19.5
9.094	264.3	730.4	406.3	648.1	97.3	19
9.141	257.7	734.6	408.7	651.9	97.8	18.5
9.188	251.1	738.9	411.0	655.6	98.4	18.1
9.234	244.6	743.1	413.4	659.4	98.9	17.6
9.281	238	747.3	415.7	663.2	99.5	17.1
9.328	231.4	751.6	418.1	666.9	100.1	16.7
9.375	224.8	755.8	420.4	670.7	100.6	16.2
9.422	218.3	760	422.8	674.4	101.2	15.7
9.469	211.7	764.3	425.1	678.2	101.7	15.3
9.516	205.1	768.5	427.5	681.9	102.3	14.8
9.563	198.5	772.7	429.8	685.7	102.8	14.3
9.609	192	776.9	432.2	689.5	103.4	13.9
9.656	185.4	781.2	434.5	693.2	103.9	13.4
9.703	178.8	785.4	436.9	697	104.5	12.9
9.75	172.2	789.6	439.2	700.7	105	12.5
9.797	165.7	793.9	441.6	704.5	105.6	12
9.844	159.1	798.1	443.9	708.2	106.2	11.5
9.891	152.5	802.3	446.3	712	106.7	11.1
9.938	145.9	806.6	448.7	715.7	107.3	10.6

Control voltage (V)	Primary (uA)	Grid (V)	Color development (V)	Black development (V)	Primary transfer (uA)	Secondary transfer (uA)
9.984	139.3	810.8	451.0	719.5	107.8	10.1
10.031	132.8	815	453.4	723.3	108.4	9.6
10.078	126.2	819.3	455.7	727	108.9	9.2
10.125	119.6	823.5	458.1	730.8	109.5	8.7
10.172	113	827.7	460.4	734.5	110	8.2
10.219	106.5	832	462.8	738.3	110.6	7.8
10.266	99.9	836.2	465.1	742	111.1	7.3
10.313	93.3	840.4	467.5	745.8	111.7	6.8
10.359	86.7	844.6	469.8	749.6	112.3	6.4
10.406	80.2	848.9	472.2	753.3	112.8	5.9
10.453	73.6	853.1	474.5	757.1	113.4	5.4
10.5	67	857.3	476.9	760.8	113.9	5
10.547	60.4	861.6	479.2	764.6	114.5	4.5
10.594	53.9	865.8	481.6	768.3	115	4
10.641	47.3	870	483.9	772.1	115.6	3.6
10.688	40.7	874.3	486.3	775.9	116.1	3.1
10.734	34.1	878.5	488.6	779.6	116.7	2.6
10.781	27.5	882.7	491.0	783.4	117.2	2.2
10.828	21	887	493.3	787.1	117.8	1.7
10.875	14.4	891.2	495.7	790.9	118.4	1.2
10.922	7.8	895.4	498.0	794.6	118.9	0.8
10.969	1.2	899.7	500.4	798.4	119.5	0.3
11.016	0	903.9	Outside of warranty	802.1	120	-0.2
11.063	0	Outside of warranty	Outside of warranty	Outside of warranty	120.6	-0.6
11.109	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	-1.1

Control voltage (V)	Primary (uA)	Grid (V)	Color development (V)	Black development (V)	Primary transfer (uA)	Secondary transfer (uA)
11.156	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.203	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.25	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.297	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.344	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.391	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.438	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.484	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.531	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.578	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.625	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.672	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.719	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.766	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.813	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.859	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0

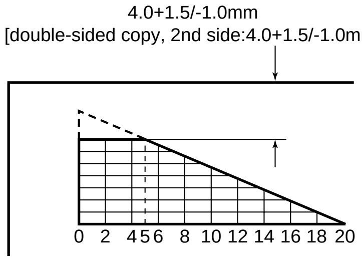
Control voltage (V)	Primary (uA)	Grid (V)	Color developm ent (V)	Black developm ent (V)	Primary transfer (uA)	Secondar y transfer (uA)
11.906	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
11.953	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0
12	0	Outside of warranty	Outside of warranty	Outside of warranty	Outside of warranty	0

12.2 Image Adjustments

12.2.1 Image Position

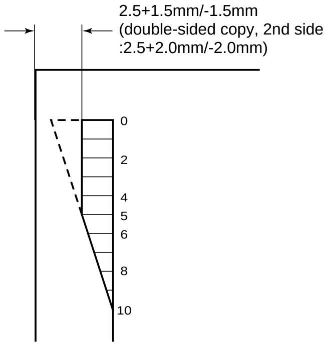
The margin and the non-image width of a printout made at 100% magnification must be as follows:

- Leading Edge Margin


4.0+1.5/-1.0mm
[double-sided copy, 2nd side:4.0+1.5/-1.0mm]
0 2 4 5 6 8 10 12 14 16 18 20

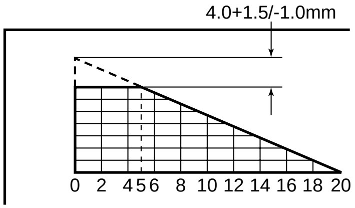
F-12-7

- Left/Right Margin


2.5+1.5mm/-1.5mm
(double-sided copy, 2nd side
:2.5+2.0mm/-2.0mm)
0
2
4
5
6
8
10

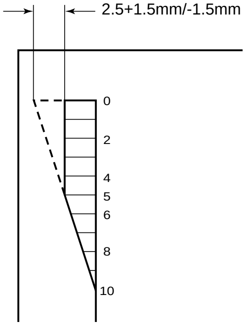
F-12-8

- Leading Edge Non-Image Width


4.0+1.5/-1.0mm
0 2 4 5 6 8 10 12 14 16 18 20

F-12-9

- Left/Right Non-Image Width


2.5+1.5mm/-1.5mm
0
2
4
5
6
8
10

F-12-10

12.2.2 Checking the Image Position

Make 10 prints using the following as the source of paper; then, check to see if the margin and the non-image width are as indicated:

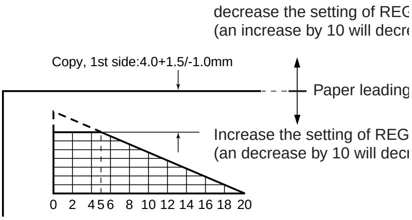
1 cassettes
2 manual feed tray
3 left/right front deck

If outside the standards, make the following adjustments:

1. Leading Edge Image Margin Adjustment (1st side)

Execute the following service mode to adjust the registration:

COPIER > ADJUST > FEED-ADJ > REGIST


decrease the setting of REG
(an increase by 10 will decr
Copy, 1st side:4.0+1.5/-1.0mm
Paper leading
Increase the setting of REG
(an decrease by 10 will dec
0 2 4 5 6 8 10 12 14 16 18 20

F-12-11

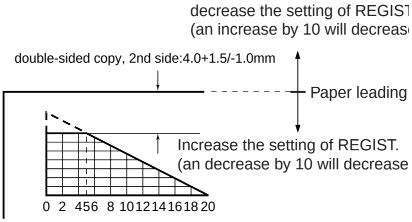
2. Left/Right Image Margin Adjustment

Adjust the horizontal registration mechanically.

3. Leading Edge Image Margin Adjustment (2nd side)

Execute the following service mode items to adjust the registration:

COPIER > ADJUST > FEED-ADJ > RG-REFE

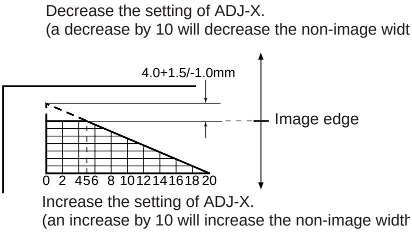

decrease the setting of REGIST
(an increase by 10 will decreas
double-sided copy, 2nd side:4.0+1.5/-1.0mm
Paper leading
Increase the setting of REGIST.
(an decrease by 10 will decrease
0 2 4 5 6 8 10 12 14 16 18 20

F-12-12

4. Leading Edge Non-Image Width Adjustment

Execute the following service mode item:

COPIER > ADJUST > ADJ-XY > ADJ-X


Decrease the setting of ADJ-X.
(a decrease by 10 will decrease the non-image widt
4.0+1.5/-1.0mm
Image edge
0 2 4 5 6 8 10 12 14 16 18 20
Increase the setting of ADJ-X.
(an increase by 10 will increase the non-image widtl

F-12-13

5. Left/Right Non-Image Width Adjustment

Execute the following service mode item:

COPIER > ADJUST > ADJ-XY > ADJ-Y

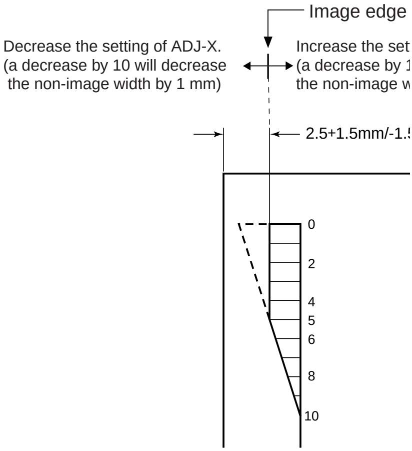


Image edge
Decrease the setting of ADJ-X.
(a decrease by 10 will decrease
the non-image width by 1 mm)
Increase the set
(a decrease by 1
the non-image w
2.5+1.5mm/-1.
0
2
4
5
6
8
10

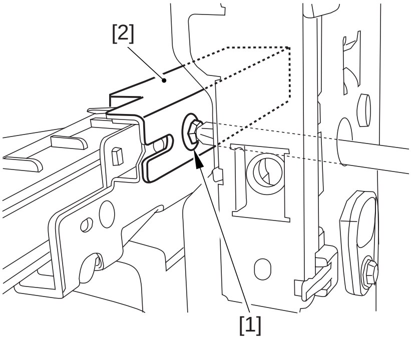
F-12-14

12.2.3 Cassette

Make prints using the cassettes 3 and 4 as the source of paper, and check to make sure that the left/right margin is as indicated.

- If not as indicated, make the following adjustments:

1) Press the cassette release button, and slide out the cassette 3 or 4 to the front.
2) Open the upper right cover and the lower right cover.
3) Insert a screwdriver through the opening in the front right stay; then, loosen the screw [1], and adjust the position of the adjusting plate [2].



F-12-15

- move the adjusting plate toward the rear to increase the left margin.
- move the adjusting plate toward the front to decrease the left margin.

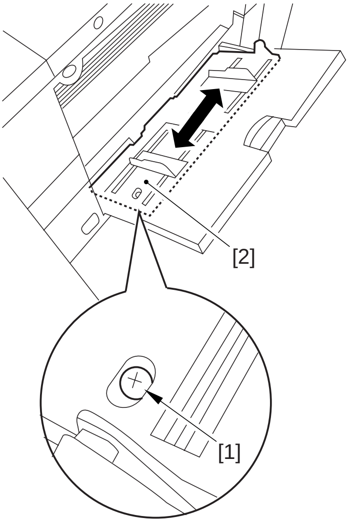
4) Tighten the screw.
5) Close the upper right cover and the lower right cover.
6) Put the cassette 3 or 4 back in the machine.

12.2.4 Manual Feed Tray

Make copies using the manual feed tray as the source of paper, and check to make sure that the left/right margin is as indicated.

- if not, make the following adjustments:

1) Loosen the screw [1], and move the position of the slide guide [2] to adjust the horizontal registration.



F-12-16

2) Check to make sure that the left/right margin of the prints is as indicated.
3) Tighten the screw.

12.2.5 Front Deck

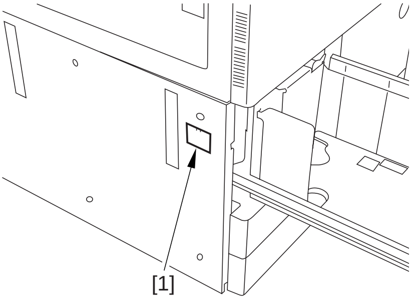
Make prints using the right deck and left deck as the source of paper, and check to be sure that the left/right margin is as indicated:

- if not, make the following adjustments:

1. Adjusting the Left/Right Margin for the Left Deck

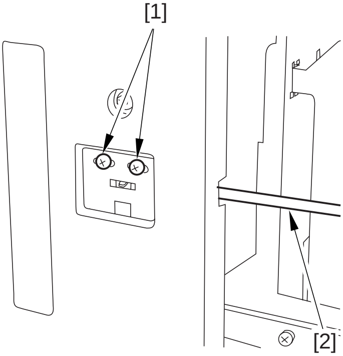
1) Push the release button, and slide out the left deck.

2) Using a flat-bladed screwdriver, detach the left face cover [1].



F-12-17

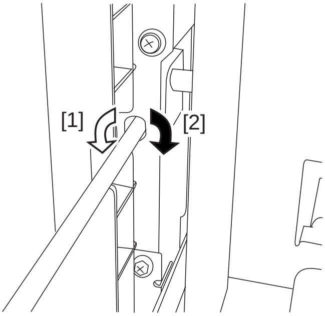
3) Loosen the 2 screws [1], and insert a screwdriver [2] through the opening of the left front stay; then, turn the adjusting screw to adjust the left/right margin.



F-12-18

4) Check to make sure that the left/right margin of the printouts on paper from the left deck is as indicated.

5) As necessary, make the following adjustments:



F-12-19

- turn the screwdriver counterclockwise to decrease the left margin [1].
- turn the screwdriver clockwise to increase the left margin [2].

A full turn of the screwdriver will change the left margin by 1.0 mm.

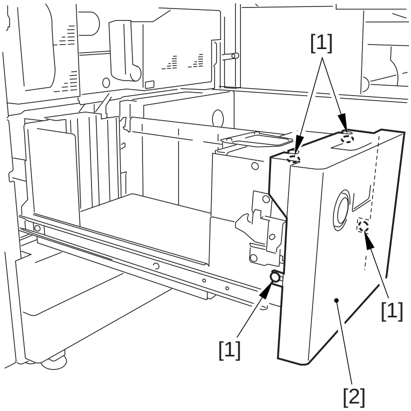
6) Tighten the 2 screws you loosened in step 3).

7) Attach the left face cover you removed in step 2) back to the machine.

8) Close the left deck.

- If the gap between the front cover/ cassette 3 front cover and the left front cover is appreciable, perform the following:

9) Slide out the left deck, and loosen the 4 screws [1]; then, shift the front left cover [2].



F-12-20

10) Close the left deck; when the gap is gone, slide out the left deck once again, and tighten the 4 screws you loosened in step 9).

- If there still is a gap, go back to step 9).

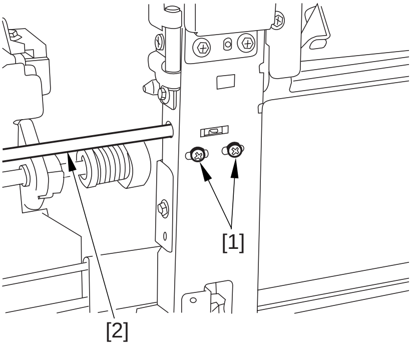
11) Close the left deck.

2. Right Deck Left/Right Margin Adjustment

1) Push the release button, and slide out the right deck.

2) Open the upper right color and the lower right cover

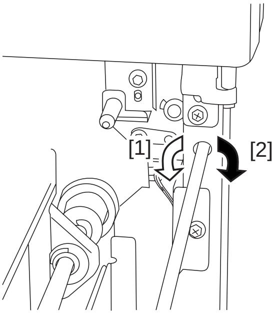
3) Loosen the 2 screws [1]; then, insert a screwdriver [2] through the opening in the front right stay, and turn the adjusting screw to adjust the horizontal registration.



F-12-21

4) Check to make sure that the left/right margin of printouts made on paper from the right deck is as indicated.

5) As necessary, perform the following:



F-12-22

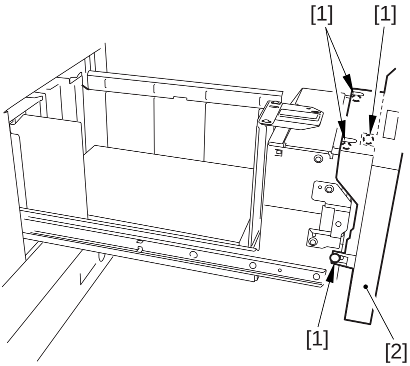
- turn the screwdriver counterclockwise to decrease the left margin [1].
- turn the screwdriver clockwise to increase the left margin [1].

A full turn of the screwdriver changes the left margin by 1.0 mm.

6) Tighten the 2 screws you loosened in step 3).
7) Close the upper right cover and the lower right cover
8) Close the right deck.

- If the gap between the front cover/ cassette 3 front cover and the front right cover is appreciable, perform the following:

9) Slide out the right deck, and loosen the 4 screws, and shift the front right cover [2].



F-12-23

10) Close the right deck; when the gap is gone, slide out the right deck once again, and tighten the 4 screws you loosened in step 9).

If there still is a gap, go back to step 9).

11) Close the right deck.

12.3 Scanning System

12.3.1 After Replacing the CCD Unit

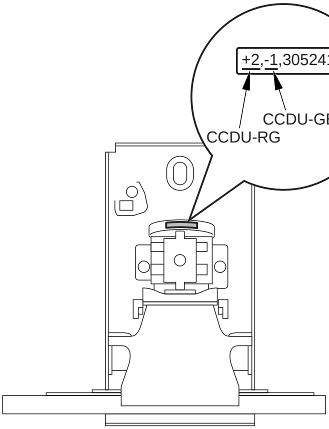
If you have replaced the CCD unit, be sure to enter the settings indicated on the label attached to the CCD unit:

COPIER>ADJUST>CCD>CCDU-RG

(to enter the correction value for CCD-dependent RG color displacement in sub scanning direction)

COPIER>ADJUST>CCD>CCDU-GB

(to enter the correction value for CCD-dependent GB color displacement in sub scanning direction)



F-12-24

Moreover, be sure to update the settings indicated on the service label attached behind the reader unit front cover with the settings indicated on the label attached to the CCD unit.

12.3.2 After Replacing the Copyboard Glass

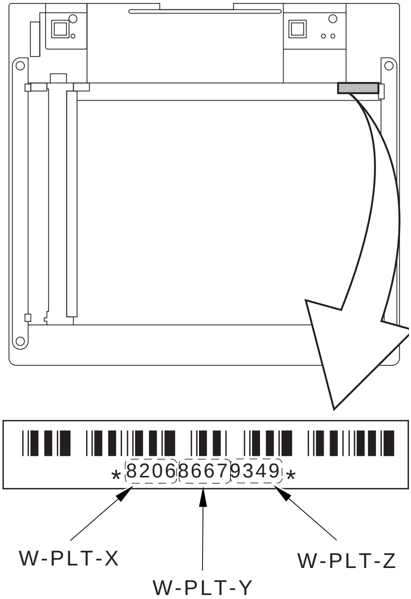
If you have replaced the copyboard glass, be sure to enter the bar code value indicated in the upper right of the copyboard glass using the following service mode items:

COPIER>ADJUST>CCD>W-PLT-X

COPIER>ADJUST>CCD>W-PLT-Y

COPIER>ADJUST>CCD>W-PLT-Z

(to enter the standard white plate white level data X, Y, Z)



F-12-25

12.3.3 After Replacing the Reader Controller PCB or Initializing the RAM

⚠ - Be sure to generate the latest P-PRINT printout before replacing the reader controller PCB.

<if you are initializing the RAM of the reader controller without replacing the PCB>

- Using the SST, upload the backup data of the reader controller; then, after initializing the RAM, download the data to eliminate the need for the following adjustments:

1. Reader Unit-Related Adjustments

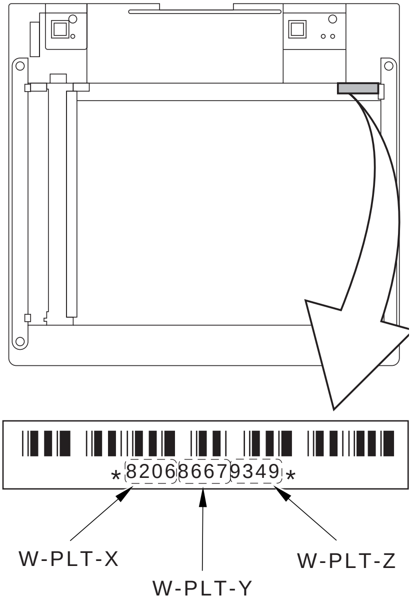
1) Using the SST, download the latest version of the system software (R-CON).

2) Make the following selections in service mode, and press the OK key to initialize the RAM: COPIER>FUNCTION>CLEAR>R-CON. Thereafter, turn off and then on the main power.

3) Enter the settings for the following items in service mode:

a. standard white plate white level data

COPIER>ADJUST>CCD>W-PLT-X,Y,Z



F-12-26

b. service label settings (label attached behind reader unit front cover)

b-1 image read start position adjustment (x direction; for fixed reading)

COPIER>ADJUST>ADJ-XY>ADJ-X

b-2 image read start position adjustment (Y direction; fixed reading)

COPIER>ADJUST>ADJ-XY>ADJ-Y

b-3 shading position adjustment (for fixed reading)

COPIER>ADJUST>ADJ-XY>ADJ-S

b-4 feeder mode main scanning position adjustment

COPIER>ADJUST>ADJ-XY>ADJ-Y-DF

b-5 ADF stream reading CCD read position adjustment

COPIER>ADJUST>ADJ-XY>STRD-POS

b-6 CCD unit-dependent RB/GB sub scanning direction color displacement correction value

COPIER>ADJUST>CCD>CCDU-RG/GB

b-7 CCD unit-dependent RG/GB sub scanning direction color displacement value at shipment

COPIER>ADJUST>CCD>FCCDU-RG/GB

b-8 auto gradation adjustment target value

COPIER>ADJUST>PASCAL>OFST-P-Y,M,C,K

2. ADF-Related Adjustments

⚠ The machine uses the RAM on its reader controller to hold ADF-related service data; as such, you must make the appropriate adjustments for the ADF whenever you have replaced the reader controller or initialized the RAM.

1) Enter the settings indicated on the P-PRINT printout you have previously generated for the following items:

a. original stop position adjustment

FEEDER>ADJSUT>DOCST

b. original feed speed (magnification) adjustment

FEEDER>ADUST>LA-SPEED

2) Make adjustments using the following items:

a. ADF sensor sensitivity adjustment

FEEDER>FUNCTION>SENS-INT

b. tray width adjustment

AB system: **FEEDER>FUNCTION>TRY-A4 and FEEDER>FUNCTION>TRY-A5R**

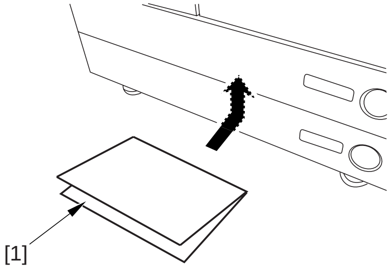
inch system: **FEEDER>FUNCTION>TRY-LTR and FEEDER>FUNCTION>TRY-LTRR**

c. white level adjustment

COPIER>FUNCTION>CCD>DF-WLVL1

COPIER>FUNCTION>CCD>DF-WLVL2

When done, put the P-PRINT printout [1] you have previously generated in the service book, disposing of the older printout, if any.



F-12-27

12.4 Laser Exposure System

12.4.1 After Replacing the Laser Scanner

1) Make the following selections in service mode, and press the OK key: COPIER>FUNCTION>DPC>DPC.

2) Turn off and then on the main power switch.

12.5 Image Formation System

12.5.1 After Replacing the Black Developing Unit

Be sure to perform the following whenever you have replaced the black developing assembly:

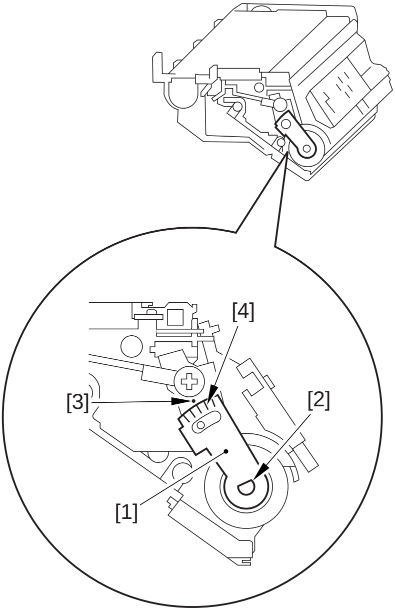
1) Make the following selections in service mode (black toner supply): FUNCTION>INSTALL>TONER-S.

12.5.2 Points to Note When Mounting the Polarity Positioning Plate

Go through the following steps in strict sequence when mounting the polarity positioning plate:

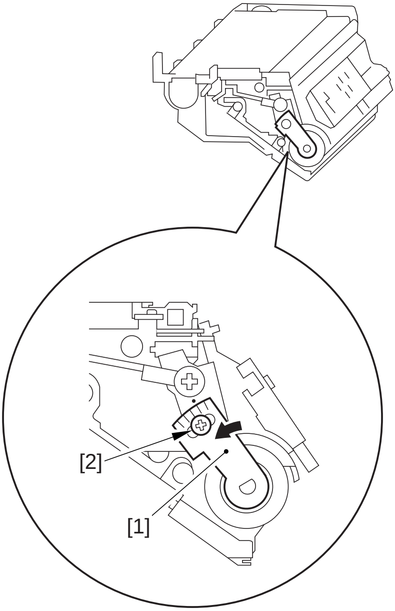
1) Let go of your hand so that the developing cylinder moves and stops on its own.

2) Shift the polarity positioning plate [1] counterclockwise as much as the length of the play of the D-cut notch [2]; then, read the index [4] of the marking found on the blade support base.



F-12-28

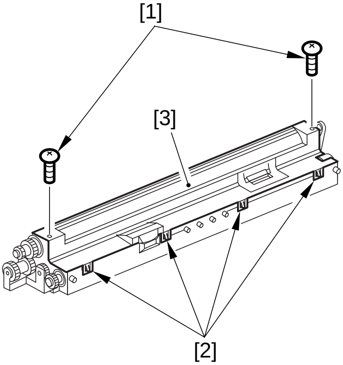
3) Turn the polarity positioning plate [1] counterclockwise by a single index (5 deg); then, tighten the screw [2] to fix it in place.



F-12-29

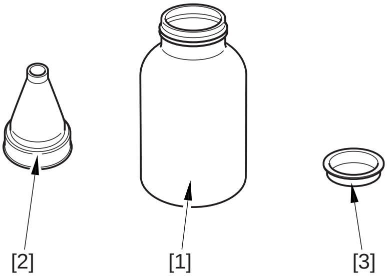
12.5.3 Replacing the Color Developing Unit

1) Open the packing box, and take out the new color developing unit.
2) Remove the screw [1], and free the 4 hooks [2]; then, remove the developing assembly lid [3].



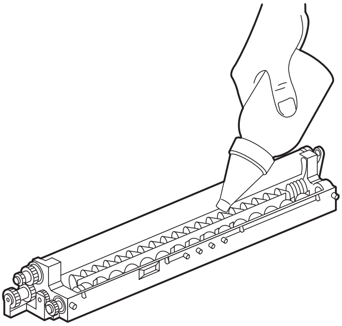
F-12-30

3) Even out the starter by shaking the container about 10 times.
4) Open the lid [2] of the starter bottle [1]; then, remove the middle lid [3], and close the lid.



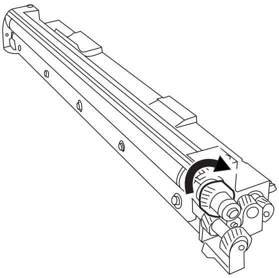
F-12-31

5) Supply half the starter so that it is even in the lengthwise direction around the stirring screw inside the color developing unit.



F-12-32

6) Turn the developing gear 5 to 6 times by hand in the direction indicated in the figure so that the starter will be even inside the unit.

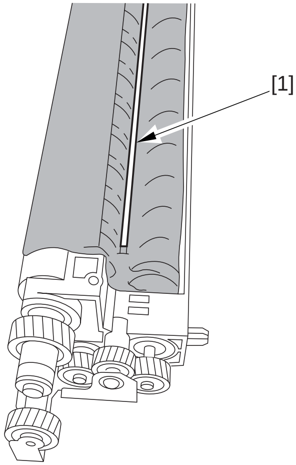


F-12-33

7) Supply the remaining half of the starter around the stirring screw inside the color developing unit.

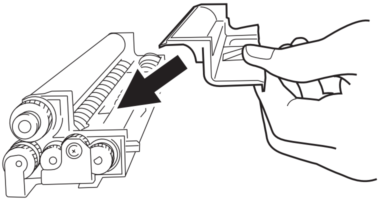
8) Turn the developing gear 5 to 6 times once again so that the starter inside the unit is even.

9) Move the starter found on the inner side of the container wall off the wall.



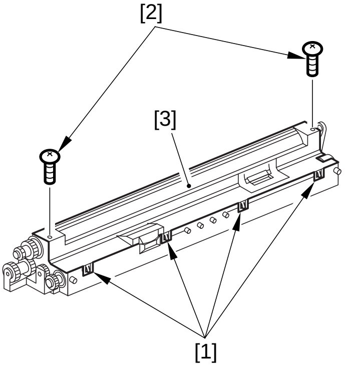
F-12-34

10) Fit the container lid you removed in step 2) back on in the direction indicated in the figure.



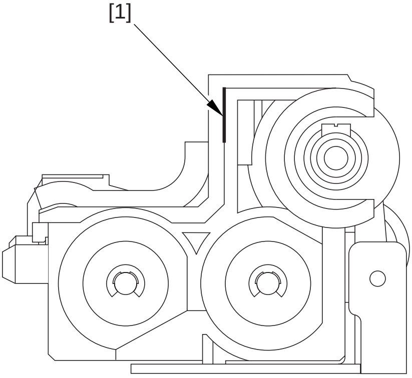
F-12-35

Thereafter, engage the 4 hooks [1]; then, fix the container lid [3] in place using the 2 screws [2] you removed in step 3).



F-12-36

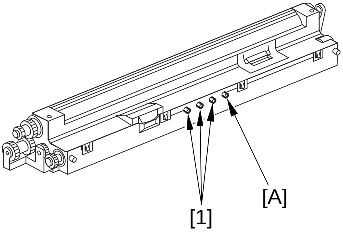
⚠ Force down the lid against the container so that the gap [1] indicated in the figure is small enough to prevent insertion of a transparency.



F-12-37

⚠ When tightening the screw, take full care so that no shavings caused by turning the screw into the lid of the developing assembly and the container will move into the container.

11) Cut off the appropriate tab [1]] to suit the color of the starter you have supplied. The tab A in the figure is an extra tab.



F-12-38

12) Fit the color developing unit by going through the steps used to detach it but in reverse.

13) Turn on the main power switch.

14) Make the following selections in service mode, and set '1', and press the OK key:

COPIER>FUNCTION>INSTALL>AINR-OFF.

15) Select one of the following service mode items to suit the color of the starter you have supplied; then, press the OK key.

- if for the Y developing assembly, COPIER>FUNCTION>INSTALL>INISET-Y
- if for the M developing assembly, COPIER>FUNCTION>INSTALL>INISET-M
- if for the C developing assembly, COPIER>FUNCTION>INSTALL>INISET-C
- if for the CMY developing assemblies,

COPIER>FUNCTION>INSTALL>INISET-3

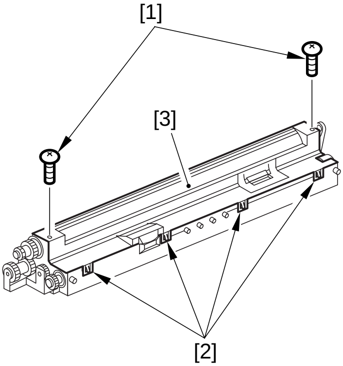
16) Execute the following service mode item: COPIER>FUNCTION>MISC-P>P-PRINT. Store away the generated printout in the service book case. (If there is a previous printout, dispose of it.)

17) End service mode, and start user mode; on the Auto Gradation Correction screen, follow the instructions to execute auto gradation correction (full).

12.5.4 Replacing the Starter of the Color Developing Unit

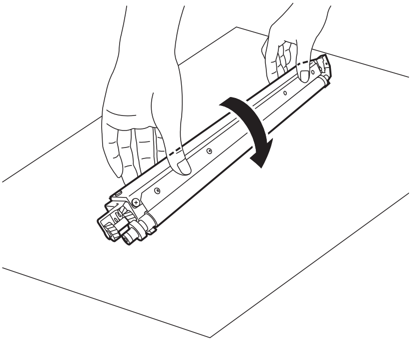
1) Remove the color developing unit.

2) Remove the screw [1], and free the 4 hooks [2]; then, detach the developing unit lid [3].



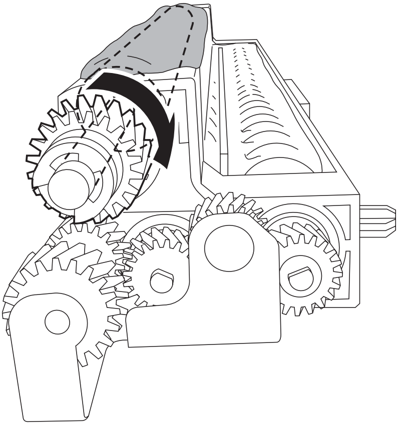
F-12-39

3) On A3 paper or in a vinyl bag, dispose of the contents of the unit by turning it over.



F-12-40

4) Turn back over the developing unit, and turn the developing gear in the direction in which the cylinder normally turns so that the agent will drop into the developing assembly.



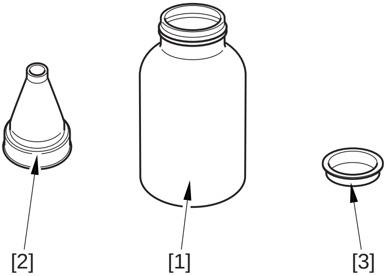
F-12-41

5) Dispose of the agent into a vinyl bag or on paper by turning over the developing unit.

6) Repeat steps 4) and 5) about 3 times (e.g., until no agent drops into the developing assembly).

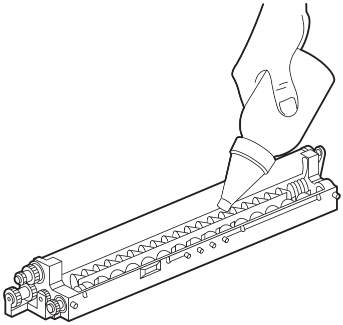
7) Shake the container of the starter about 10 times.

8) Detach the funnel [2] of the starter bottle [1]; then, detach the middle lid [3], and put the funnel back on [2].



F-12-42

9) Pour the starter along the length of the stirring screw inside the color developing unit so that it is about half full.



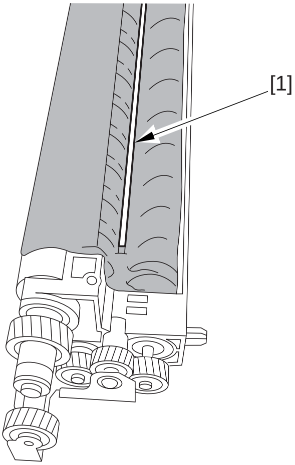
F-12-43

10) Turn the developing gear in its normal direction 5 to 6 by hand to even out the starter inside it.

11) Pour the rest of the starter around the string screw inside the color developing unit.

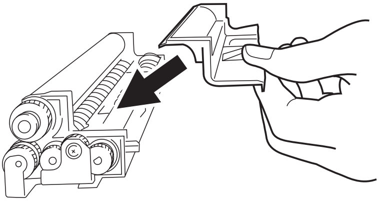
12) Turn the developing gear 5 to 6 times once again to even out the starter inside the unit.

13) Move the starter that may remain on the inner side of the unit wall [1] into the developing assembly.



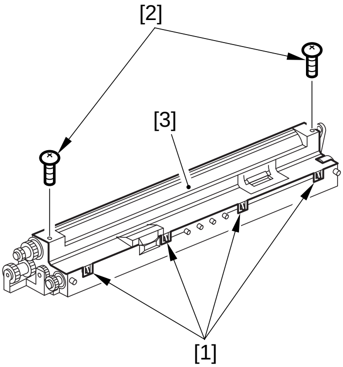
F-12-44

14) Attach the developing assembly lid you removed in step 2), making sure that the lid is oriented as shown.



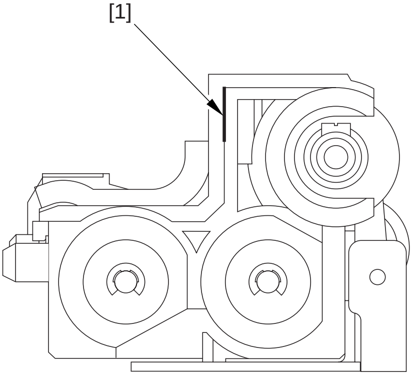
F-12-45

Engage the 4 hooks [1], and attach the developing assembly lid [3] using the 2 screws [2] you removed in step 2).



F-12-46

⚠ Be sure to force the lid against the developing container so that no transparency will enter the gap [1] shown in the figure.



F-12-47

⚠ When tightening the screw, take care so that the shavings from the developing unit or its lid will not enter the unit.

15) Mount the color developing unit using the steps you used to remove it but in reverse.

16) Turn on the main power switch.

17) Make the following selections in service mode; then, enter '1', and press the OK key: COPIER>FUNCTION>INSTALL>AINR-OFF.

18) Select the appropriate mode item from the following to suit the color of the starter you have used; then, press the OK key

- if Y developing assembly, COPIER>FUNCTION>INSTALL>INISET-Y.
- if M developing assembly, COPIER>FUNCTION>INSTALL>INISET-M.
- if C developing assembly,

COPIER>FUNCTION>INSTALL>INISET-C.

19) Execute the following in service mode: COPIER>FUNCTION>MISC-P>P-PRINT. Then, put the generated printout in the service book case. If there is any previous printout, dispose of it.

20) End service mode, and select 'auto gradation correction' in sure mode; execute auto gradation correction (full correction) by going through the instructions on the screen.

12.5.5 After Replacing the Primary Charging Assembly

If you have replaced the primary charging assembly, be sure to make the following adjustments:

1) Check the settings indicated on the primary charging assembly height adjustment label attached behind the front cover.

2) Make adjustments so that the charging wire height of the new charging assembly is as indicated.

3) Execute primary charging assembly cleaning in service mode: COPIER>FUNCTION>CLEANING>WIRE-CLN.

4) Make the following selections in service mode (potential control): COPIER>FUNCTION>DPC>DPC.

5) Turn off and then on the main power.

12.5.6 After Replacing the Primary Charging Wire

1) Clean the charging wire, grid wire, and shielding plates.

2) Execute the following in service mode (primary charging wire cleaning): COPIER>FUNCTION>CLEANING>WIRE-CLN.

12.5.7 After Replacing the Pre-Transfer Charging Wire

Execute the following in service mode (pre-transfer charging wire cleaning): COPIER>FUNCTION>CLEANING>WIRE-CLN.

12.5.8 After Replacing the Pre-Transfer Charging Wire

1) Clean the charging wire and the shielding plates.

2) Execute the following in service mode (pre-transfer charging wire cleaning): COPIER>FUNCTION>CLEANING>WI

RE-CLN.

12.5.9 After Replacing the Waste Toner Box

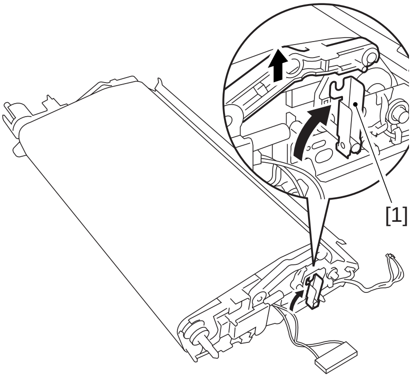
1) Set the new waste toner box in the machine.

2) Execute the following service mode, thereby resetting the waste toner counter reading to '0' (waste toner counter reset): COPIER>COUNTER>MISC>WASTE-TURN.

12.5.10 After Replacing the ITB Cleaning Blade

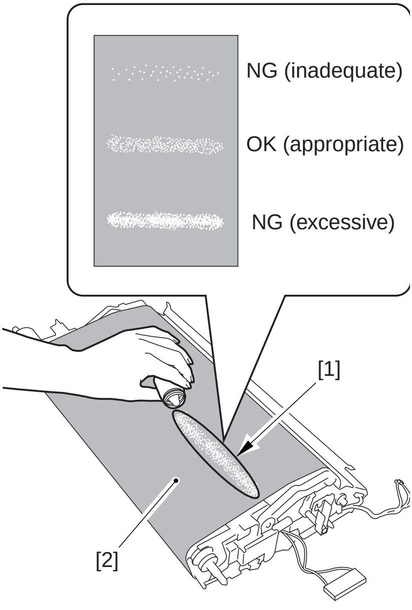
Whenever you need to replace the ITB cleaning blade, be sure to go though the following steps to apply blade lubricant (TKN-0480) to the edge of he blade.

1) Turn the primary transfer roller locking lever [1] in the direction of the arrow to engage the intermediate transfer belt.



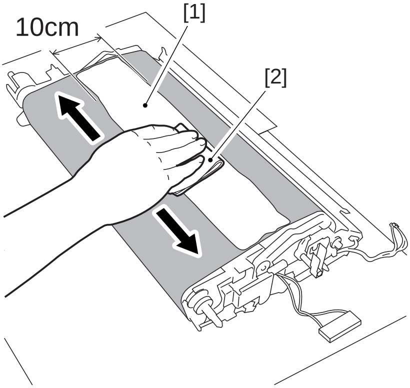
F-12-48

2) Apply an appropriate amount of blade lubricant [1] as if to sprinkle it over an area of the surface as shown.



F-12-49

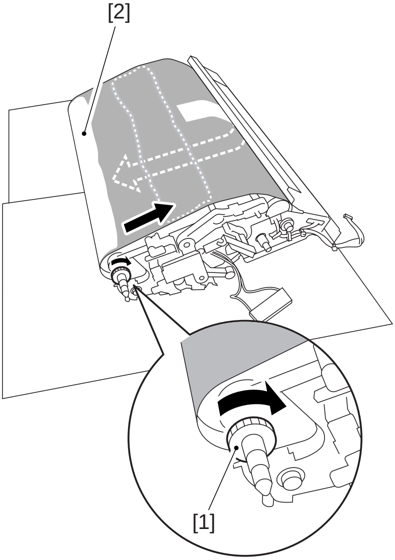
3) Spread the blade lubricant [1] using lint-free paper [2] as shown to cover an area of the belt about 10 cm wide.



F-12-50

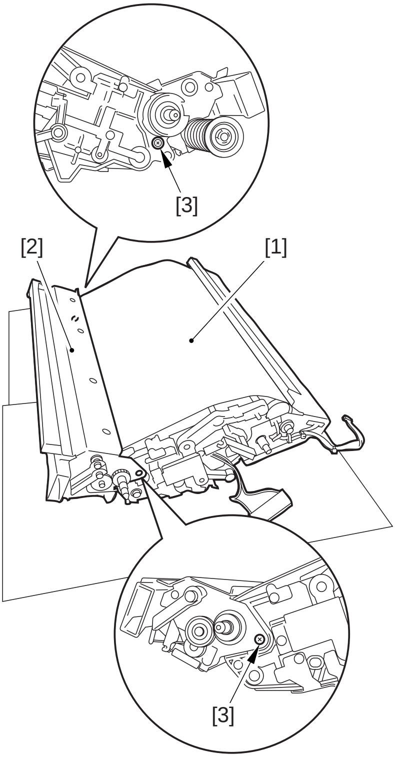
⚠Take care so that the blade lubricant will not make its way behind the intermediate transfer belt. Otherwise, the presence of blade lubricant behind the intermediate transfer belt can cause the ITB home position sensor to make wrong detection.

4) Turn the drive gear [1] in he direction of the arrow so that the area of blade lubricant [2] is found as shown.



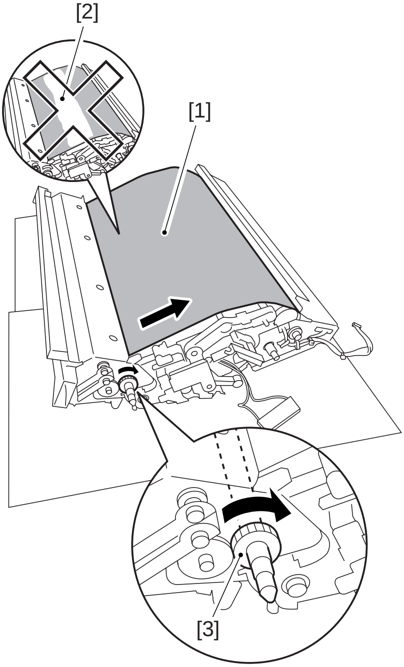
F-12-51

5) Mount the ITB cleaning unit [2] to the intermediate transfer unit [1]; then, fix it in place using 2 screws [3].



F-12-52

6) Turn the drive gear [3] until the area [2] of blade lubricant is no longer visible on the intermediate transfer belt [1].



F-12-53

⚠If you have replaced the ITB cleaner blade, be sure to perform the following:

1) Execute the following service mode item (black band sequence): COPIER>FUNCTION>CLEANING>BK-BNDEX.

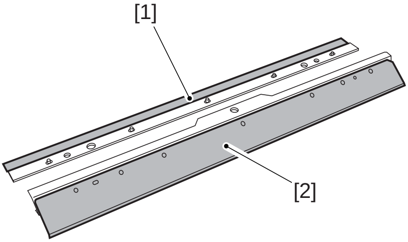
12.5.11 After Repacking the Photosensitive

Drum Cleaning Blade

Be sure of the following when mounting the photosensitive drum cleaning blade:

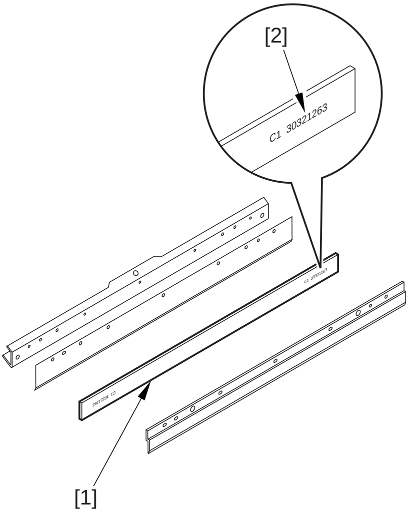
1. Do not turn over the cleaning blade. Replace it when one side has been used.
2. Clean the area [1] of the retainer plate coming into contact with the cleaning blade and the blade plate [2] using alcohol; then, dry wipe it to remove any toner.

⚠ The fine particle of toner under the blade edge can put the blade out of alignment, allowing toner on the photosensitive drum to remain on the drum in the form of residual toner.



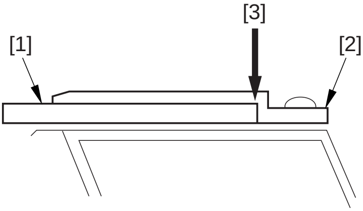
F-12-54

3. Be sure to mount the cleaning blade [1] so that the lot No. [2] faces the front and is upright.



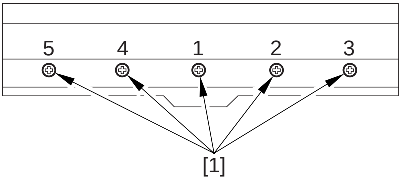
F-12-55

4. Be sure to force the cleaning blade [1] firmly against the retaining plate [2], and check to make sure that there is no gap in the area [3] indicated in the figure.



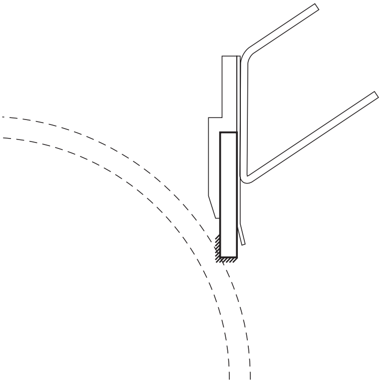
F-12-56

5. Be sure to tighten the screws [1] on the cleaning blade in the order indicated in the figure.



F-12-57

6. Apply blade lubricant (TKN-0480) along the edge (shaded; coming into contact with the photosensitive drum) of the cleaning blade.



F-12-58

⚠When you have replaced the photosensitive drum cleaning blade, be sure to execute the following service mode item.

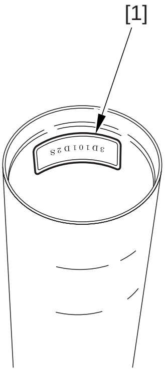
Be sure that you execute service mode immediately after the control panel screen has appeared after turning on the main switch. : COPIER>FUNCTION>MISC-P>ITR-ROT.

12.5.12 Replacing the Photosensitive Drum

If you have replaced the photosensitive drum, be sure to go through the following:

1) Remove the drum heater and the drum heater PCB; then, mount them to the new photosensitive drum.

2) Mount the photosensitive drum so that the lot number label [1] attached to its inner side is toward the front of the machine.



F-12-59

Memo:

There is a light difference in the inside diameter of the photosensitive drum between its front and its rear. (The front and rear drum flanges are designed in relation to the photosensitive drum.) If you mount the photosensitive drum in the wrong orientation, the gap between the developing cylinder and the photosensitive drum will be uneven, possibly causing uneven density.

3) Replace the starter (3 types) of the color developing unit.

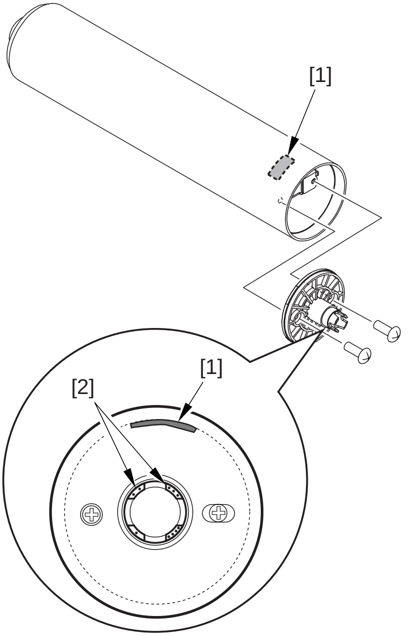
12.5.13 Points to Note When Replacing the Drum Heater

Drum memory can occur if the phase of the drum is changed, as when replacing the drum heater.

Take full care not to change the phase of the drum during the work by making sure of the following:

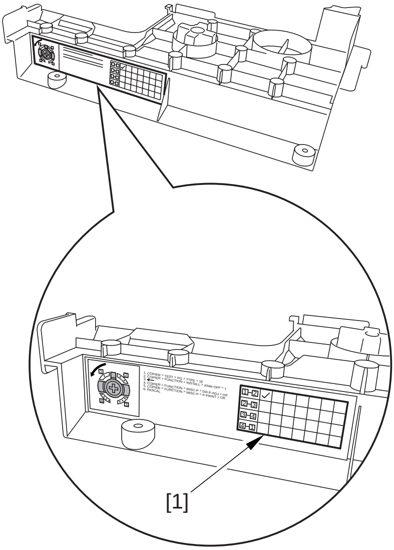
1. When detaching the drum flange, check the location of the marking [2] on the drum flange in relation to the lot No. label [1] found on the inner side of the drum. (In the case of the figure, the left of the marking is at ".." and the right is at "..." with the lot No. label facing upward.)

2. When attaching the drum flange, be sure to fix it in place with a screw where it was found in step 1.



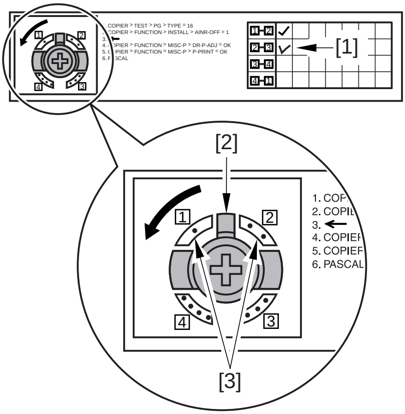
F-12-60

3. Check the drum phase label [1] attached behind the process unit cover.



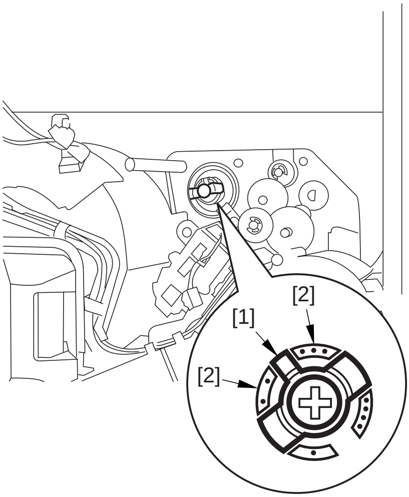
F-12-61

⚠See the following sample. The cell with a check mark [1] indicates the present drum phase location. In this case, the marking [3] is located in relation to the protrusion [2] of the drum fixing member with its left at ".." and right at "..." .


1
2
3
4
COPIER > TEST > PG > TYPE = 16
COPIER > FUNCTION > INSTALL > AINR-OFF = 1
3.
4. OPIER > FUNCTION > MISC-P > DR-P-ADJ = OK
5. OPIER > FUNCTION > MISC-P > P-PRINT = OK
6. P SCAL
1-2
2-3
3-4
4-1
[1]
[2]
1. COP
2. COPII
3.
4. COPIEF
5. COPIEF
6. PASCAL
[3]

F-12-62

4. Be sure to fit the drum fixing member [1] to the drum flange [2] in correct relation to the phase location indicated on the drum phase label.

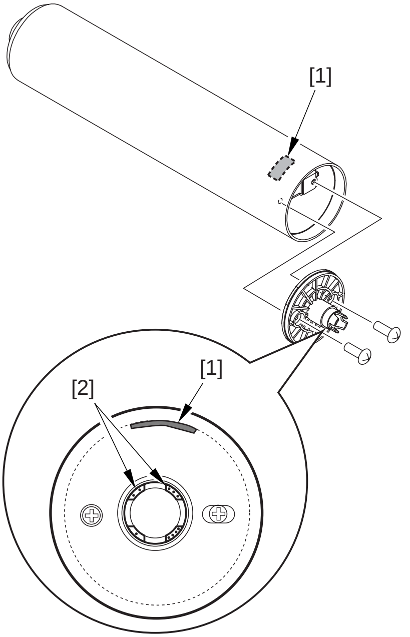


F-12-63

12.5.14 Points to Note When Replacing the Drum Heater PCB

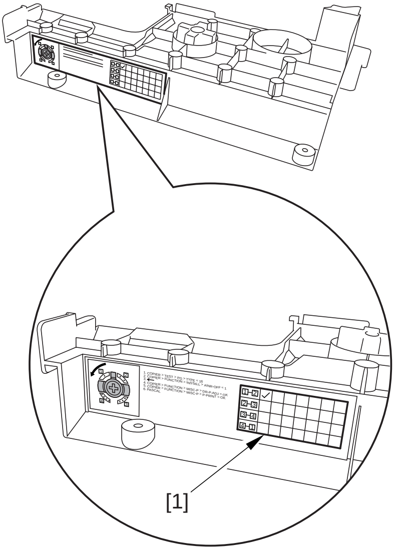
Drum memory can occur if the phase of the drum is changed, as when replacing the drum heater PCB. Take full care not to change the phase of the drum during the work by making sure of the following:

1. When detaching the drum flange, check the location of the marking [2] on the drum flange in relation to the lot No. label [1] found on the inner side of the drum. (In the case of the figure, the left of the marking is at ".." and the right is at "..." with the lot No. label facing upward.)
2. When attaching the drum flange, be sure to fix it in place with a screw where it was found in step 1.



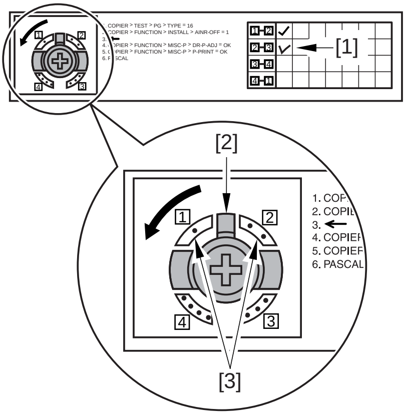
F-12-64

3. Check the drum phase label [1] attached behind the process unit cover.



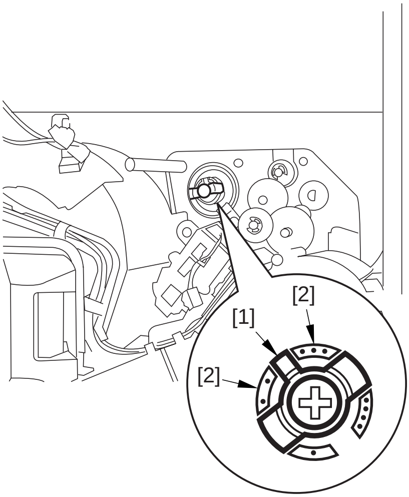
F-12-65

⚠See the following sample. The cell with a check mark [1] indicates the present drum phase location. In this case, the marking [3] is located in relation to the protrusion [2] of the drum fixing member with its left at ".." and right at "..." .


1. COPIER > TEST > PG > TYPE = 16
2. COPIER > FUNCTION > INSTALL > AINR-OFF = 1
3. ←
4. COPIER > FUNCTION > MISC-P > DR-P-ADJ = OK
5. COPIER > FUNCTION > MISC-P > P-PRINT = OK
6. PASCAL
1-2
2-3
3-4
4-1
[1]
[2]
1
2
3
4
[3]

F-12-66

4. Be sure to fit the drum fixing member [1] to the drum flange [2] in correct relation to the phase location indicated on the drum phase label.



F-12-67

12.5.15 After Repacking the ITB

When you have replaced the ITB belt, be sure to execute the following service mode item.

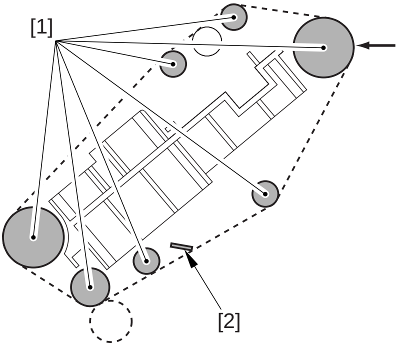
Be sure that you execute service mode immediately after the control panel screen has appeared after turning on the main switch. : COPIER>FUNCTION>MISC-P>ITR-ROT.

12.5.16 After Replacing the Primary Transfer Roller

As the machine is used more and more, the shavings from the primary transfer roller can start to collect on the rollers behind the belt.

When you have replaced the primary transfer roller, be sure to clean the 6 rollers [1] and the scraper [2] indicated below.

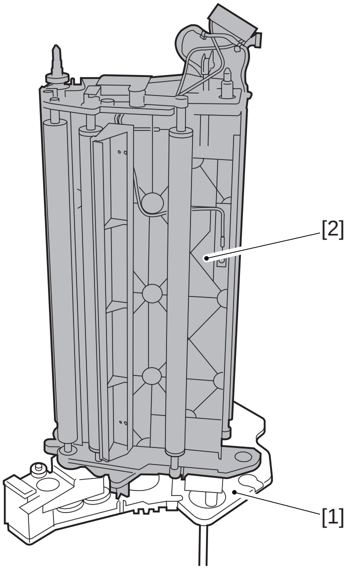
⚠The idler roller (indicated by an arrow) is designed for mounting after fitting the intermediate transfer belt. Although the figure shows the roller, it is only for reference purposes, and the roller is not in its indicated position at this point in time.



F-12-68

<Cleaning Procedure>

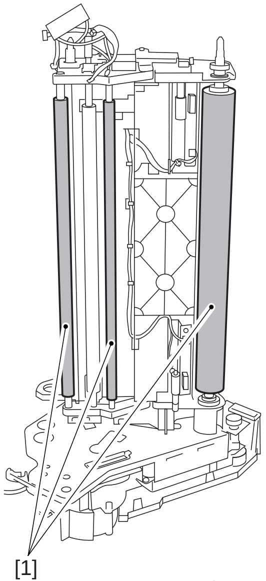
1) Place the ITB cleaner drive unit [1] with its cover facing down; then, stand the ITB unit [2].

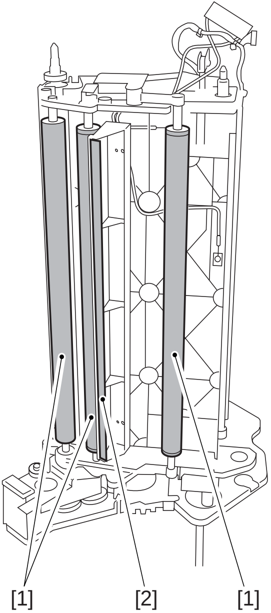


F-12-69

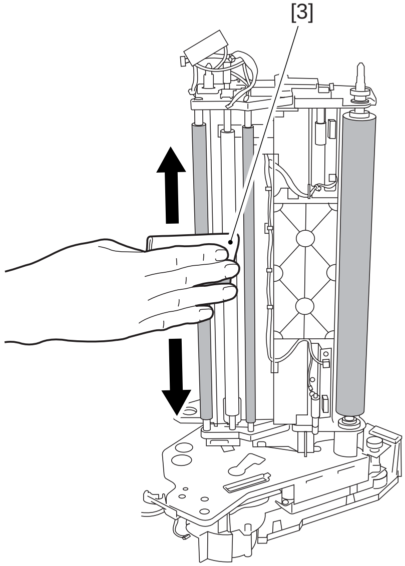
2) Clean the rollers [1] and the inside

scraper [2] using alcohol.





F-12-70



F-12-71

⚠When you have replaced the primary transfer roller, be sure to execute the following service mode item.

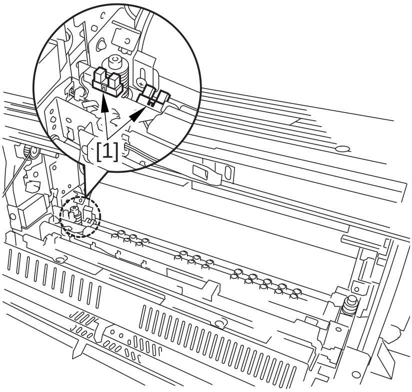
Be sure that you execute service mode immediately after the control panel screen has appeared

after turning on the main switch. : COPIER>FUNCTION>MISC-P>ITR-ROT.

12.6 Fixing System

12.6.1 Points to Note When Mounting the Fixing Assembly

⚠ When fitting the fixing assembly into the fixing/feeding assembly, take full care not to damage the 2 sensors [1].



F-12-72

12.6.2 After Replacing the Fixing Roller

If you have replaced the fixing roller, be sure to execute the following service mode item to reset the counter reading:
COPIER>COUNTER>DRBL-1>FX-UP-RL

12.6.3 After Replacing the Fixing Web

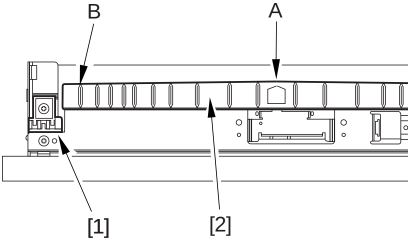
1. After attaching the web, take up its slack so that there will be no slack when the web unit is fitted in the fixing assembly.
2. After replacing the web, reset the readings of the following service mode items:

COPIER>COUNTER>MISC>FIX-WEB
COPIER>COUNTER>DRBL-1>FX-WEB

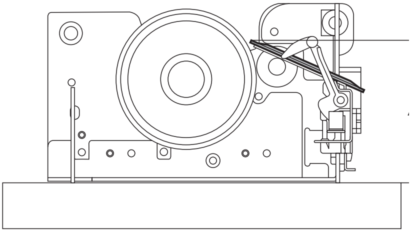
12.6.4 Position of the Fixing inlet Guide

⚠ Do not loosen the screw on the inlet guide base [1], as you would have to adjust the position of the guide if you detached it. If you loosened it for some reason, be sure to perform the following:

1) Adjust the position of the inlet guide base [1] so that the height [A] at the center of the fixing inlet guide [2] is 60.7 +/-0.2 mm and the difference in height between the ribs [B] on both sides of the inlet guide is 0.5 or less.



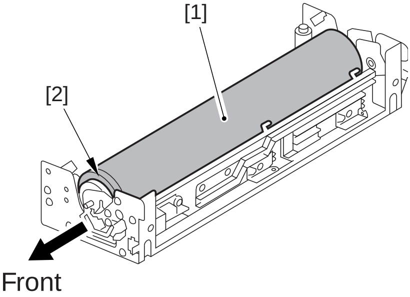
F-12-73



F-12-74

12.6.5 Points to Note When Mounting the Pressure Roller

Be sure to mount the pressure roller [1] so that the lot number [2] found on its edge is found toward the front of the machine.

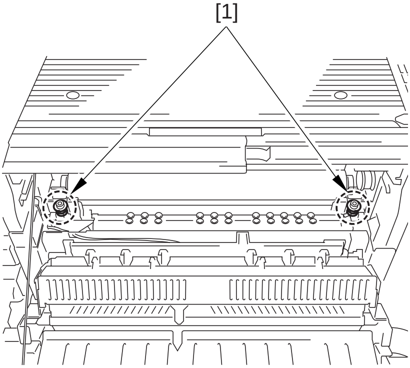


F-12-75

12.6.6 Adjusting the Nip Pressure of the Pressure Roller

⚠

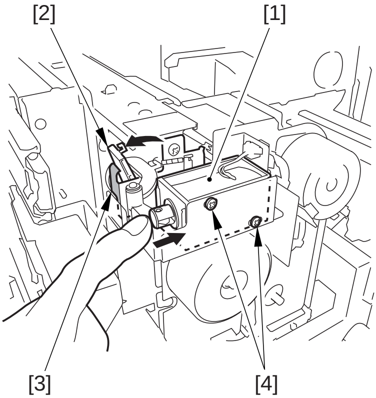
The nip is adjusted to a high degree of accuracy before the machine is shipped out of the factory, and it cannot be adjusted in the field. Do not turn the 2 hex bolts [1] found on the delivery side of the fixing assembly. If you turned it by mistake, be sure to turn it back to its initial position.



F-12-76

12.6.7 Adjusting the Position of the Feeding Web Solenoid (SL2)

Pull on the solenoid [1], and tighten the screw [4] while making sure that the lever [2] is in firm contact with the plate at a specific point [3].

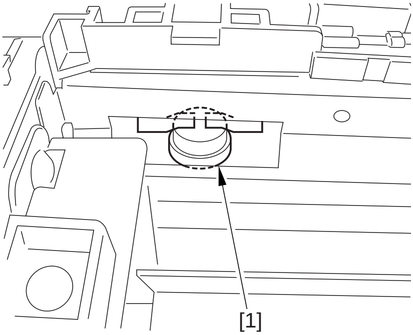


F-12-77

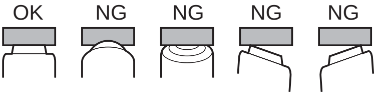
12.6.8 Points to Note About the Position of the Fixing Thermal Switch

⚠ After mounting the thermal switch, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-12-78



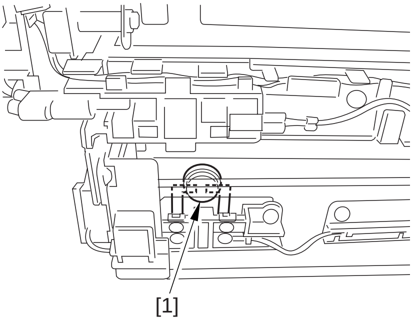
F-12-79

12.6.9 Points to Note When Mounting

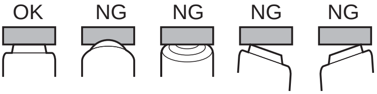
the Shift Thermal Switch

⚠ After mounting the thermal switch (before mounting the inlet guide), check to make sure o the following:

The surface of the thermal switch [1] must be parallel to the pressure roller. (Be sure to check it by shining the thermal switch by a pen light.) if not, re-mount it.



F-12-80



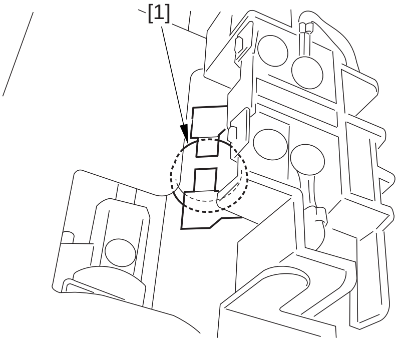
F-12-81

12.6.10 Points to Note When Mounting the Outside Heating

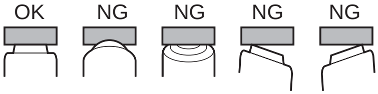
Roller Thermal Switch

⚠ After mounting the thermal switch, check to be sure of the following:

The surface of the thermal switch [1] must be parallel to the outside heating roller. (Be sure to shine the thermal witch switch a pen light.) If not, re-mount it.



F-12-82



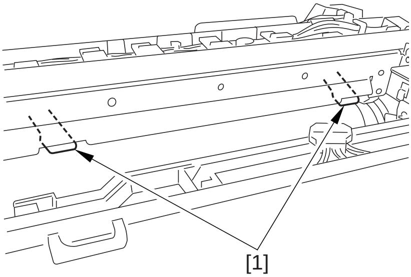
F-12-83

12.6.11 Points to Note When Mounting the

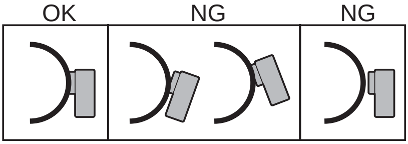
Fixing Upper Thermistor

⚠After mounting the thermistor, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-12-84

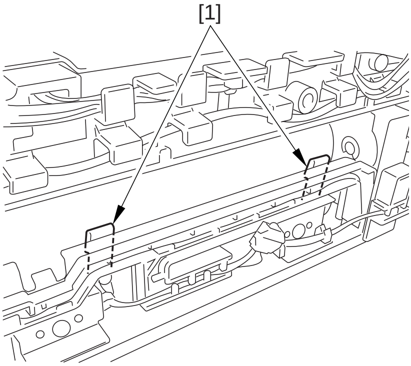


F-12-85

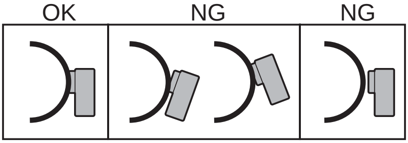
12.6.12 Points to Note When Mounting the Fixing Lower Thermistor

⚠After mounting the thermistor, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-12-86

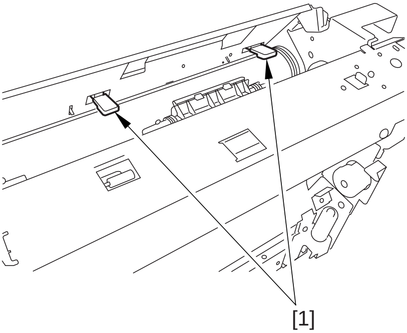


F-12-87

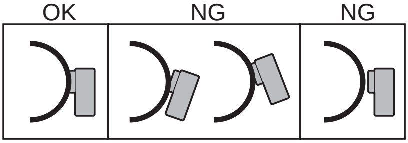
12.6.13 Points to Note When Mounting the External Heat Thermistor

⚠After mounting the thermistor, make sure of the following:

The surface of the thermal switch [1] must be parallel to the fixing roller. (Check to be sure by shining the thermal switch with a pen light.) Otherwise, re-mount it.



F-12-88



F-12-89

12.7 Electrical Components

12.7.1 When Replacing the Reader Controller PCB

⚠ - Be sure to generate the latest P-PRINT printout before replacing the reader controller PCB.

<if you are initializing the RAM of the reader controller without replacing the PCB>

- Using the SST, upload the backup data of the reader controller; then, after initializing the RAM, download the data to eliminate the need for the following adjustments:

1. Reader Unit-Related Adjustments

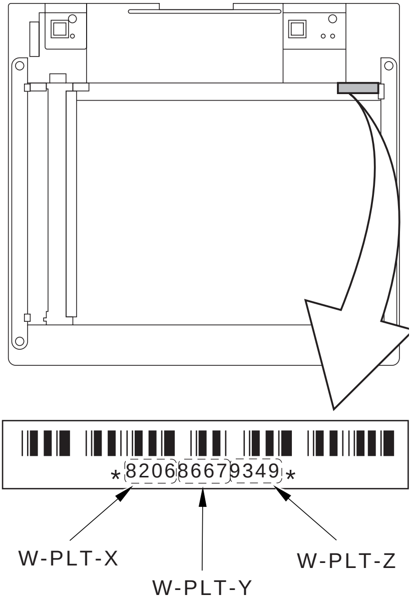
1) Using the SST, download the latest version of the system software (R-CON).

2) Make the following selections in service mode, and press the OK key to initialize the RAM: COPIER>FUNCTION>CLEAR>R-CON. Thereafter, turn off and then on the main power.

3) Enter the settings for the following items in service mode:

a. standard white plate white level data

COPIER>ADJUST>CCD>W-PLT-X,Y,Z



F-12-90

b. service label settings (label attached behind reader unit front cover)

b-1 image read start position adjustment (x direction; for fixed reading)

COPIER>ADJUST>ADJ-XY>ADJ-X

b-2 image read start position adjustment (Y direction; fixed reading)

COPIER>ADJUST>ADJ-XY>ADJ-Y

b-3 shading position adjustment (for fixed reading)

COPIER>ADJUST>ADJ-XY>ADJ-S

b-4 feeder mode main scanning position adjustment

COPIER>ADJUST>ADJ-XY>ADJ-Y-DF

b-5 ADF stream reading CCD read position adjustment

COPIER>ADJUST>ADJ-XY>STRD-POS

b-6 CCD unit-dependent RB/GB sub scanning direction color displacement correction value

COPIER>ADJUST>CCD>CCDU-RG/GB

b-7 CCD unit-dependent RG/GB sub scanning direction color displacement value at shipment

COPIER>ADJUST>CCD>FCCDU-RG/GB

b-8 auto gradation adjustment target value

COPIER>ADJUST>PASCAL>OFST-P-Y,M,C,K

2. ADF-Related Adjustments

⚠ The machine uses the RAM on its reader controller to hold ADF-related service data; as such, you must make the appropriate adjustments for the ADF whenever you have replaced the reader controller or initialized the RAM.

1) Enter the settings indicated on the P-PRINT printout you have previously generated for the following items:

a. original stop position adjustment

FEEDER>ADJSUT>DOCST

b. original feed speed (magnification) adjustment

FEEDER>ADUST>LA-SPEED

2) Make adjustments using the following items:

a. ADF sensor sensitivity adjustment

FEEDER>FUNCTION>SENS-INT

b. tray width adjustment

AB system: **FEEDER>FUNCTION>TRY-A4 and FEEDER>FUNCTION>TRY-A5R**

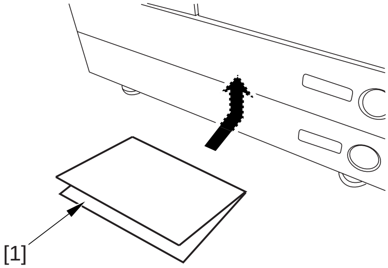
inch system: **FEEDER>FUNCTION>TRY-LTR and FEEDER>FUNCTION>TRY-LTRR**

c. white level adjustment

COPIER>FUNCTION>CCD>DF-WLVL1

COPIER>FUNCTION>CCD>DF-WLVL2

When done, put the P-PRINT printout [1] you have previously generated in the service book, disposing of the older printout, if any.



F-12-91

12.7.2 After Replacing the DC Controller PCB

⚠ Be sure to generate the latest P-PRINT printout before replacing the DC controller PCB.

COPIER>FUNCTION>MISC-P>P-PRINT

1) Using the SST, download the latest version of the system software.

2) Replace the DC controller PCB, and initialize the RAM of the DC controller using the following service mode item:

COPIER>FUNCTION>CLEAR>DC-CON

3) Check to see that the settings of the following service mode items are the same as the settings indicated in the P-PRINT printout; if not, enter the settings indicated on the printout

- **COPIER>ADJUST>LASER>(all items)**
- **COPIER>ADJUST>IMG-REG>(all items)**
- **COPIER>ADJUST>DEVELOP>(all items)**
- **COPIER>ADJUST>DENS>(all items)**
- **COPIER>ADJUST>V-CONT>(all items)**
- **COPIER>ADJUST>HV-PRI>(all items)**
- **COPIER>ADJUST>HV-TR>(all items)**
- **COPIER>ADJUST>FEED-ADJ>(all items)**
- **COPIER>ADJUST>CST-ADJ>(all items)**
- **COPIER>ADJUST>MISC>(ATM WT-ER-LV WT-FL-LM)**
- **COPIER>ADJUST>EXP-LED>(all items)**

4) Enter the counter backup settings indicated on the P-PRINT printout in service mode:

- **COPIER>COUNTER>MISC>FIX-WEB**
- **COPIER>COUNTER>MISC>PRI-CLN**
- **COPIER>COUNTER>MISC>FX-UP-RL**
- **COPIER>COUNTER>MISC>DV-UNT-K**
- **COPIER>COUNTER>MISC>DV-CAR-Y**
- **COPIER>COUNTER>MISC>DV-CAR-M**
- **COPIER>COUNTER>MISC>DV-CAR-C**
- **COPIER>COUNTER>DRBL-1>FX-UP-RL**

5) Execute the following service mode item (compulsive initial rotation sequence): COPIER>FUNCTION>MISC-P>INTR-EX.

6) Execute auto gradation correction in user mode (adjust/cleaning>auto gradation correction>full correction).

7) You will have to dispose of the waste

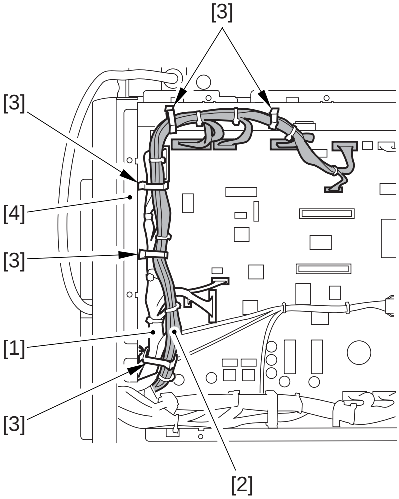
toner in the waste toner bottle.

⚠ After replacing the DC controller PCB or initialized the RAM, you have to dispose waste toner, because you cannot enter a setting for the following in service mode: COUNTER>MISC>WASTE-TNR.

12.7.3 Points to Note When Mounting the DC Controller PCB/ DC Controller Box

⚠ During assembly work, be sure to connect the harness to the DC controller PCB as follows:

- Connect the connector of the harness [1] first, and then the other harness [2].
- Fix the harnesses [1] [2] in place using the wire saddle [3] so that the harness [1] is on the left side of the harness [2].



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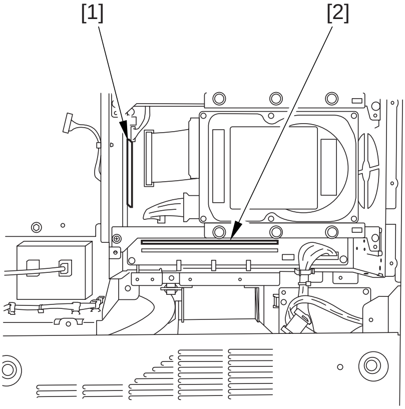
Supplementary Information:
If the harness [1] is away from the side plate [4] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur because of noise.

12.7.4 After Replacing the Main Controller PCB (main)

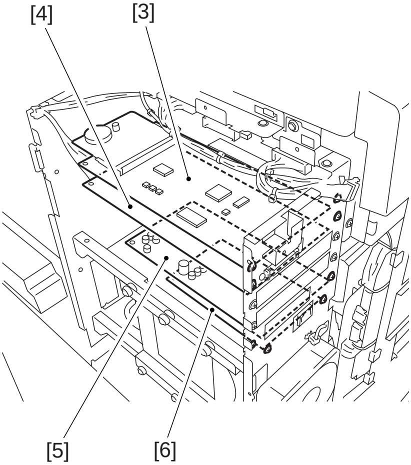
After mounting the main controller PCB (main), be sure to mount the PCBs you may have removed before replacing the main controller PCB:

1 boot ROM
2 image memory (SDRAM)
3 expansion bus PCB

4 main controller PCB (sub)
5 UFR board (optional)
6 Ethernet board



F-12-93



F-12-94

12.7.5 After Repacking the SRAM Board

⚠ be sure to inform the sure that replacing the SRAM board will lead to the loss of all image data held in Boxes, and obtain his/her consent before starting the work.

- if you are replacing the SRAM board, be sure to use a new one. The use of a used SRAM board (used in a different printer) will likely cause malfunction.

1) Replace the SRAM board, and turn on the main power (so that the machine will run an auto initialization session).
2) When the control panel indicates the message "Turn Off and Then On the Power Switch on the Left" on its control panel, turn off and then on the power.
3) Make the following selections in service mode, and press the OK key to initialize the RAM: COPIER>FUNCTION>CLEAR>MN-CON.

12.7.6 After Replacing the HDD

A. If NetSpot Accountant (NSA) Is Not Used

1) Format the HDD.

Start in safe mode (i.e., turn on the main power while holding down the 2 and 8 keys).

Using the SST's hard disk formatting function, format all partitions. (For instructions, see the chapter on upgrading.)

2) Download the system software.

Using the SST, download the system, language, and RUI files. (It may take about 5 min for the machine to start up after a download session.)

B. If NetSpot Account (NSA) Is Used in Combination with a Card Reader

The HDD retains the card ID used by NSA. If you have replaced the HDD, you will have to download the card data from NSA once again for NSA to operate. As shown under A. "If NetSpot Accountant Is Not Used," format the HDD and download the system software, and then perform extra steps:

1) Format the HDD.

Start up in safe mode (i.e., by turning on the main power while holding down the 2 and 8 keys).

Using the SST's hard disk formatting function, format all partitions. (For instructions, see the chapter on upgrading.)

2) Download the system software.

Using the SST, download the system, language, and RUI files. (It may take about 5 min for the machine to start up after a download session.)

3) Start service mode.

Make the following selections in service mode: COPIER>FUNCTION>INSTALL>CARD.

4) Enter the appropriate card No.

Enter the lowest of the numbers of the cards used for group control, and press the OK key (e.g., enter '1' if cards run from No. 1 to No. 1000).

5) Turn off and then on the main power.

6) Check the count control function.

In sure mode, make the following selections, and check to see IDs between ID00000001 and ID00001000 have been created.

7) Set the address.

Set 'IP address', 'gateway address', and 'sub net mask' in sure mode: system control setup>network setup>TCP/IP setup>IP address.

8) Enter the appropriate number in sure mode: system administrator info setup>system control group ID>system control ID No.

9) Turn off and then on the main power.

⚠ If you fail to set 'system control group ID' and 'system control ID No.', you will not be able to set 'register card to device' as part of the NetSpot Account setup work.

10) Download the card ID.

While the machine is in a standby state, download the card ID from NSA.

11) Check the count control function.

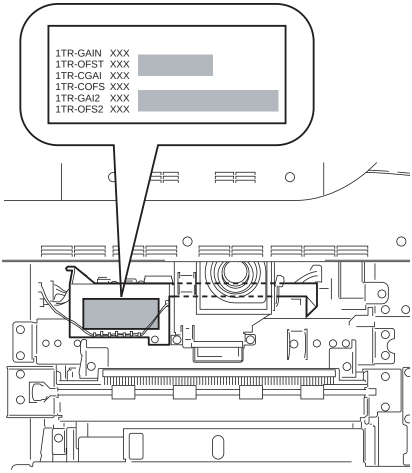
In sure mode, make the following selections, and check to see that only the ID data is indicated on the screen: system control setup>group ID control>count control.

12) Check to see that the machine operates normally.

Make copies using a sure card that has been registered using NSA; then, check to make sure that the use of the card is properly indicated.

12.7.7 When Replacing the HV2 PCB

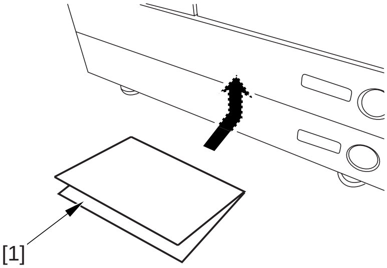
1) Enter the settings indicated on the PCB label [1] attached to the new HV2 for the following 6 service mode items:
   COPIER>ADJUSUT>HV-TR>1TR-GAIN
   COPIER>ADJUSUT>HV-TR>1TR-OFST
   COPIER>ADJUSUT>HV-TR>1TR-CGAI
   COPIER>ADJUSUT>HV-TR>1TR-COFS
   COPIER>ADJUSUT>HV-TR>1TR-GAI2
   COPIER>ADJUSUT>HV-TR>1TR-OFS2



F-12-95

2) Generate a P-PRINT printout in service mode.

3) Put the generated P-PRINT printout [1] in the service book case, replacing any existing printout.



F-12-96

12.7.8

When Replacing the ATR Sensor/Patch Image Read Sensor

If you have replaced the ATR sensor/patch image read sensor, be sure to execute the following:

1) Replace the contents of the color developing unit with starter (3 types).

12.8 Pickup/Feeding System

12.8.1 Adjusting the Horizontal Registration After Replacing the Pickup Cassette

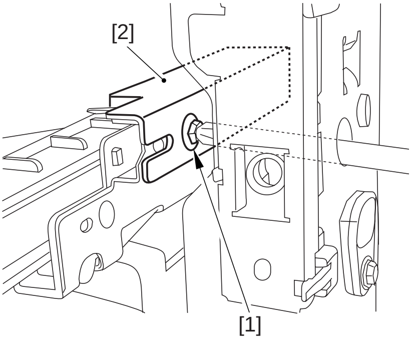
Make prints using the cassettes 3 and 4 as the source of paper, and check to make sure that the left/right margin is as indicated.

- If not as indicated, make the following adjustments:

1) Press the cassette release button, and slide out the cassette 3 or 4 to the front.

2) Open the upper right cover and the lower right cover.

3) Insert a screwdriver through the opening in the front right stay; then, loosen the screw [1], and adjust the position of the adjusting plate [2].



F-12-97

- move the adjusting plate toward the rear to increase the left margin.
- move the adjusting plate toward the front to decrease the left margin.

4) Tighten the screw.

5) Close the upper right cover and the lower right cover.

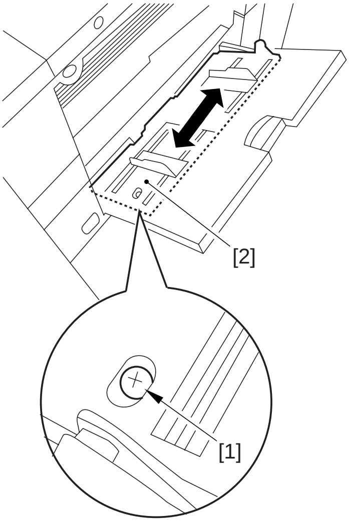
6) Put the cassette 3 or 4 back in the machine.

12.8.2 Adjusting the Manual Feed Pickup Horizontal Registration

Make copies using the manual feed tray as the source of paper, and check to make sure that the left/right margin is as indicated.

- if not, make the following adjustments:

1) Loosen the screw [1], and move the position of the slide guide [2] to adjust the horizontal registration.



F-12-98

2) Check to make sure that the left/right margin of the prints is as indicated.

3) Tighten the screw.

12.8.3 Adjusting the Front Deck Pickup Horizontal Registration

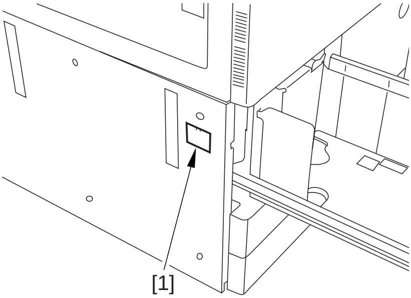
Make prints using the right deck and left deck as the source of paper, and check to be sure that the left/right margin is as indicated:

- if not, make the following adjustments:

1. Adjusting the Left/Right Margin for the Left Deck

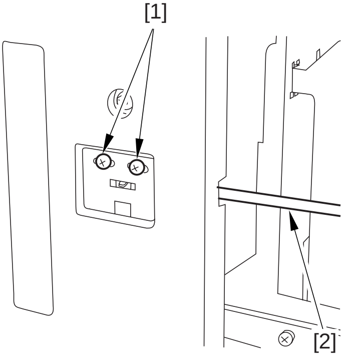
1) Push the release button, and slide out the left deck.

2) Using a flat-bladed screwdriver, detach the left face cover [1].



F-12-99

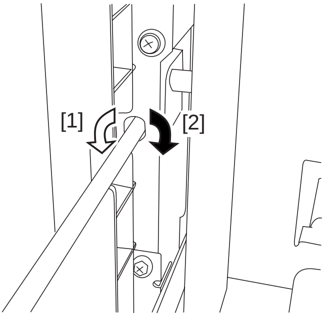
3) Loosen the 2 screws [1], and insert a screwdriver [2] through the opening of the left front stay; then, turn the adjusting screw to adjust the left/right margin.



F-12-100

4) Check to make sure that the left/right margin of the printouts on paper from the left deck is as indicated.

5) As necessary, make the following adjustments:



F-12-101

- turn the screwdriver counterclockwise to decrease the left margin [1].
- turn the screwdriver clockwise to increase the left margin [2].

A full turn of the screwdriver will change the left margin by 1.0 mm.

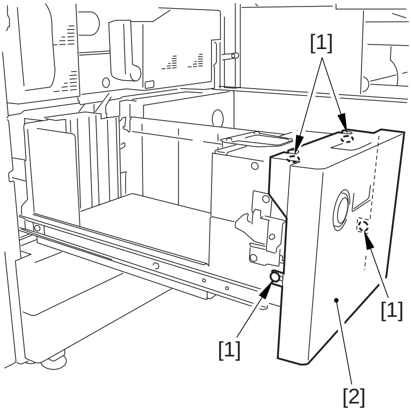
6) Tighten the 2 screws you loosened in step 3).

7) Attach the left face cover you removed in step 2) back to the machine.

8) Close the left deck.

- If the gap between the front cover/ cassette 3 front cover and the left front cover is appreciable, perform the following:

9) Slide out the left deck, and loosen the 4 screws [1]; then, shift the front left cover [2].



F-12-102

10) Close the left deck; when the gap is gone, slide out the left deck once again, and tighten the 4 screws you loosened in step 9).

- If there still is a gap, go back to step 9).

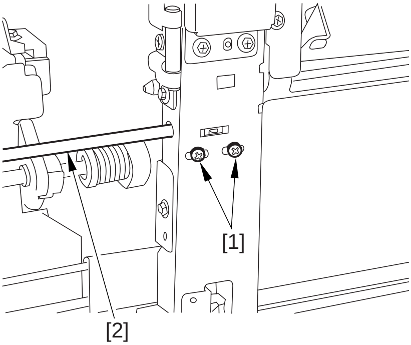
11) Close the left deck.

2. Right Deck Left/Right Margin Adjustment

1) Push the release button, and slide out the right deck.

2) Open the upper right color and the lower right cover

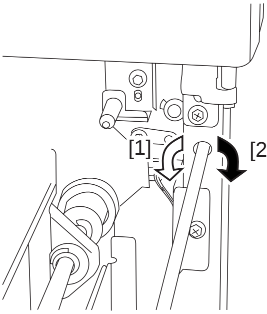
3) Loosen the 2 screws [1]; then, insert a screwdriver [2] through the opening in the front right stay, and turn the adjusting screw to adjust the horizontal registration.



F-12-103

4) Check to make sure that the left/right margin of printouts made on paper from the right deck is as indicated.

5) As necessary, perform the following:



F-12-104

- turn the screwdriver counterclockwise to decrease the left margin [1].
- turn the screwdriver clockwise to increase the left margin [1].

A full turn of the screwdriver changes the left margin by 1.0 mm.

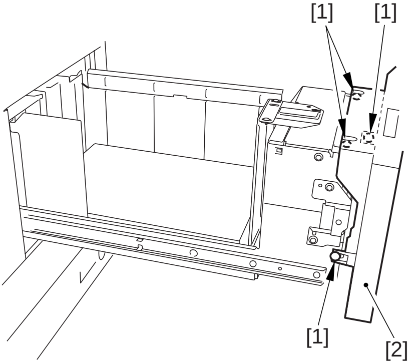
6) Tighten the 2 screws you loosened in step 3).

7) Close the upper right cover and the lower right cover

8) Close the right deck.

- If the gap between the front cover/ cassette 3 front cover and the front right cover is appreciable, perform the following:

9) Slide out the right deck, and loosen the 4 screws, and shift the front right cover [2].



F-12-105

10) Close the right deck; when the gap is gone, slide out the right deck once again, and tighten the 4 screws you loosened in step 9).

If there still is a gap, go back to step 9).

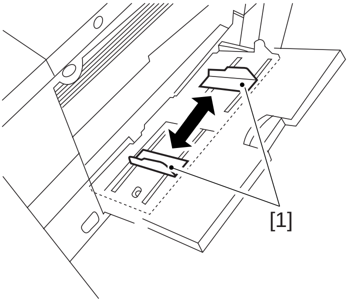
11) Close the right deck.

12.8.4 Registering the Paper Width Basic Value

1) Turn on the main power switch.

2) Register the A4R paper width basic value as follows:

2-1) Set the manual feed side guide [1] to A4R.



F-12-106

2-2) Start service mode, and make the following selections to register manual feed A4R width:

CPOIER>FUNCTION>CST>MF-A4R

2-3) Press the OK key to store the new A4R width.

2-4) Record the A4R basic setting indicated on the control panel on the service label.

3) Register the A4 paper width basic value as follows:

3-1) Set the manual feed side guide to A4.

3-2) Make the following selections to register manual feed A4 width:

CPOIER>FUNCTION>CST>MF-A4

3-3) Press the OK key to register the A4 width.

3-4) Record the A4 basic value indicated on the control panel on the service label.

4) Register the A6R paper with basic value as follows:

4-1) Set the manual feed side guide to A6R.

4-2) Make the following selections to register the A6R width:

CPOIER>FUNCTION>CST>MF-A6R

4-3) Press the OK key to register the new A6R width.

4-4) Record the A6R basic value indicated on the control panel on the service label.

5) Press the Reset key twice to end service mode.

6) Turn off the control panel power switch.

7) Turn off the main power switch.

Chapter 13

Correcting Faulty Images

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13.1 Making lnitial Checks

13.1.1 Checking the Site Environment

a. The voltage of the source of power must be as indicated (+/-10%), and the power plug must remain connected day and night.

b. The temperature and humidity of the site must be as indicated, and the site must be away from a water faucet, water boiler, humidifier; moreover, the machine must not be near a fire or subjected to dust.

c. The site must be free of ammonium gas.

d. The machine must not be subjected to the direct rays of the sun. As necessary, curtains must be furnished.

e. The site must be well ventilated, and its floor must keep the machine level.

f. The machine must remain connected to the wall outlet at all times.

13.1.2 Checking the Paper

a. Check to see if the paper is of a type recommended by Canon.

b. Check to see if the paper is dry. If moist, try paper fresh out of package.

13.1.3 Checking the Placement of Paper

a. Check to see that the amount of paper placed in the cassette and the manual feed tray is as indicated.

b. If transparencies are used, check to see if they are placed in the correct orientation.

13.1.4 Checking the Durables

Check the Durables Table, and replace those parts that have reached the end of the indicated lifetimes.

13.1.5 Checking the Periodically Replaced Parts

Check the Scheduled Servicing Chart and the Periodically Replaced Parts Table, and replace those parts that have reached the end of the indicated lifetimes.

13.1.6 Checking the Units and Functional Blocks

<Reader Unit>

- Check the optical system (contact sensor, white plate, copyboard glass) for a scar, dirt, and foreign matter.
- Check the contact sensor unit to see if it moves smoothly. Check its rail for dirt.
- Check the contact sensor for flickering.
- Check the scanner for condensation.

<Process>

- Check the drum unit/developing unit to see if it is fitted properly.
- Check the photosensitive drum for a scar and dirt.
- Check the patch image read sensor window for dirt.

<Transfer>

- Check the secondary transfer outside roller for wear, scar, dirt, and deformation.
- Check the blade of the cleaning unit for a tear, warping, deformation, and stray toner.

<Fixing>

- Check the fixing roller/pressure roller for wear, scar, dirt, and deformation.
- Check the fixing heater (main/sub) to see if it goes on when the power is turned on.
- Check the fixing thermistor for an open circuit.
- Check the thermal switch for electrical continuity.

<Paper Movement>

- Check to see if there is foreign matter such as paper lint.
- Check the pickup/feed/separation roller for a buildup of paper powder, wear, scar, dirt, and deformation.
- Check the registration roller (middle, outside)/paper path roller for wear, scar, dirt, and deformation.
- Check the feed guide for wear, scar, dirt, and deformation.
- Check the paper for a bent leading edge, curling, waving, and moisture.

- As necessary, try transparencies of a type recommended by Canon to see if the problem, if any, is corrected.

<Machine>
- Check to see if an excess load is imposed on the drive system.
- Check the gears for wear and chipping.

<Cassette>
- Check to see if the cassettes are fitted properly. Check also to see that an appropriate paper size is selected. As necessary, try a normal cassette to see if the problem, if any, stops.
- Check to see that the movement of the cassette holding plate is smooth. Check also to see that the holding plate is free of deformation.
- Check to see if the side guide plate/trailing edge plate inside the cassette are set correctly.
- Check to see if the cassette heater switch is at the ON side (if a cassette heater is fitted).

<Service Mode>
- Check to see that the various CCD adjustment values are as indicated on the service label.
  (COPIER>ADJUST>CCD>all items)
- Check to see if registration adjustment is correct.
  (COPIER>ADJUST>FEED-ADJ>REGIST)
- Check to see if the machine inside temperature/humidity is the correct reading.
  (COPIER>DISPLAY>ANALOG>TEMP/ABS-HUM)
- Check to see that the image read position adjustment is correct.
  (COPIER>ADJUST>ADJ-XY>ADJ-X/ADJ-Y)
- Check to see if the value for ADJUST/OPTION is as indicated on the service label.
- Check to see if error initialization has been executed.
  (COPIER>FUNCTION>CLEAR>ERR)

<General>
- Check to see that the power plug is connected properly.
- Check to see that there is the rated AC voltage at the power outlet.
- Check to see that the sensors, clutches, motors, and solenoids operate normally. Check the connectors for poor contact.
  (Be sure to check with the General Timing Chart for reference to power/signal routes.)
- Check to see that the leakage breaker/circuit breaker operates normally.
- Check the wiring for trapping and loose screws.

- Check to see that the external cover are all fitted properly.
- Check to see that the main power switch/control panel power switch are at the ON side.
- Check to see that the power cable/signal cable to accessories are correctly routed.
- Check to see that the cover switch operates normally.
- Check the fuses on the PCBs to see if they have blown.
- Check to see that the user knows how to use the machine correctly.

13.1.7 Others

If a machine is brought in from a cold to a warm place, its inside can develop condensation, which will lead to various problems.

a. condensation on the BD sensor can cause faults associated with E100.
b. condensation on the dust-blocking glass can cause the images in sub scanning direction to be too light.
c. condensation on the contact sensor of the reader unit or the copyboard glass can lead to light images.
d. condensation on the pickup/feed guide can cause faulty paper movement.

If d above is noted, be sure to dry wipe the units involved in the feed system.
The same is true of toner cartridges, developing units, and drum units, i.e., when they are unpacked after being brought in from a cold place. To prevent condensation, advise the user to leave the package alone (for about 1 to 2 hr) before opening it.

13.2 Test Print

13.2.1 Overview

The machine offers the following 6 types of test prints (TYPE), each designed for identification of a specific type of image fault. The data for these test prints is prepared by the main controller: if the output of a test print is free of the fault in question, suspect a fault on the PDL input or the reader unit.

13.2.2 Test Print TYPE

T-13-1

Type No.	**Description**
0	normal copy/print
1-3	-(for R&D)
4	16 gradations
5	full half-tone
6	grid
7-9	-(for R&D)
10	MCYBk horizontal stripe (sub scanning direction)
11	-(for R&D)
12	64 gradations
13	-(for R&D)
14	full color 16 gradations
15-100	-(for R&D)

13.2.3 Selecting Test Print TYPE

1) Set the copy count, paper size, and pickup mode (single-sided or double-sided).

2) Make the following selections in service mode: COPIER>TEST>PG.
3) Make the following selections: COPIER>TEST>PG>TYPE.
4) Enter the appropriate TYPE No. using the keypad, and press the OK key.
5) Select the appropriate color using COLOR-Y/M/C/K (output at 1).
6) Set the density using DENS-Y/M/C/K (valid only if TYPE=5).
7) Press the start key.

13.2.4 16-Gradation (TYPE=4)

Use this test print to check gradation, fogging, white line, and uneven density at the front/rear.

a. Gradation

If the 16-gradation[1] is not properly produced, suspect a fault in the drum unit or the laser exposure system.

b. Fogging

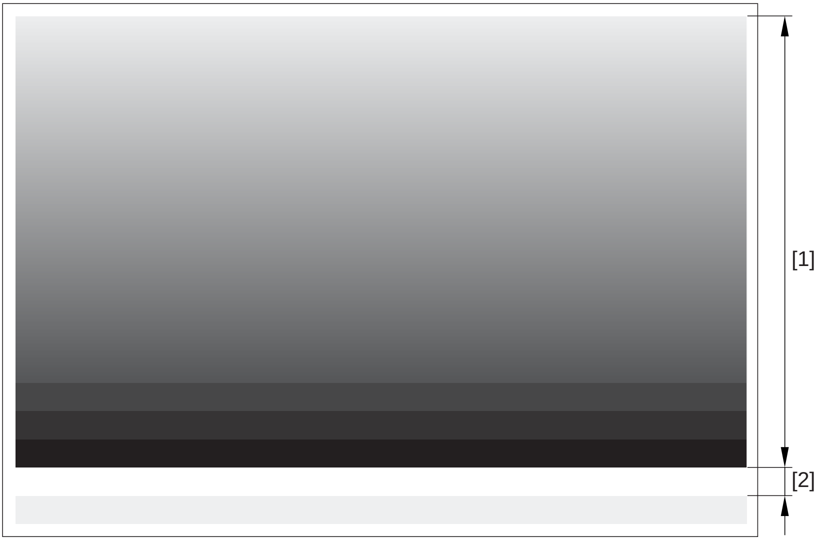
If fogging is found only in the white area[2], suspect a fault in the drum unit or the laser exposure system.

c. White Line

If a white line is found in the image, suspect a fault in the developing system.

d. Uneven Density at the Front/Rear

If uneven density is found at the front/rear, suspect a fault in the drum unit, laser exposure system, or transfer system.



F-13-1

13.2.5 Full Page Halftone (TYPE=5)

Use this test print to check a transfer fault, black line, white line, and uneven density at specific intervals.

Memo:
- You can print out test prints for individual colors by making the following selections in service mode: COPIER>TEST>PG and then COLOR-Y/M/C/K.
- You can also change the density of the test prints by making the following selections in service mode: TEST>PG>DENS>Y/M/C/K.

---

a. Transfer Fault

If a transfer fault is found, suspect a fault in the ITB unit or the secondary transfer outside roller.

b. Black Line

If a black line is found, suspect a scar in the photosensitive drum or dirt on the primary charging roller.

c. White Line

If a white line is found at the same location for all colors, suspect a fault in the ITB unit or the secondary transfer outside roller.

If it is found in different locations, or it is found in a specific color, suspect a fault in the drum unit or the laser exposure system.

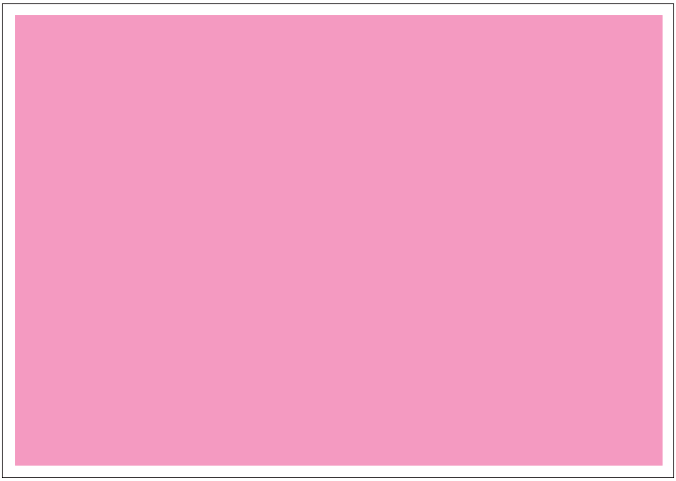
d. Uneven Density at Specific Intervals

If the uneven density is at specific intervals, suspect the following:

- if at 194.7 mm, photosensitive drum.
- if at 37.6 mm, developing cylinder

e. Uneven Density

If uneven density is found, suspect dirt on the dust blocking glass of the laser scanner unit and deterioration of the ITB.



COLOR-M=1, COLOR-Y/C/K=0

F-13-2

13.2.6 Grid (TYPE=6)

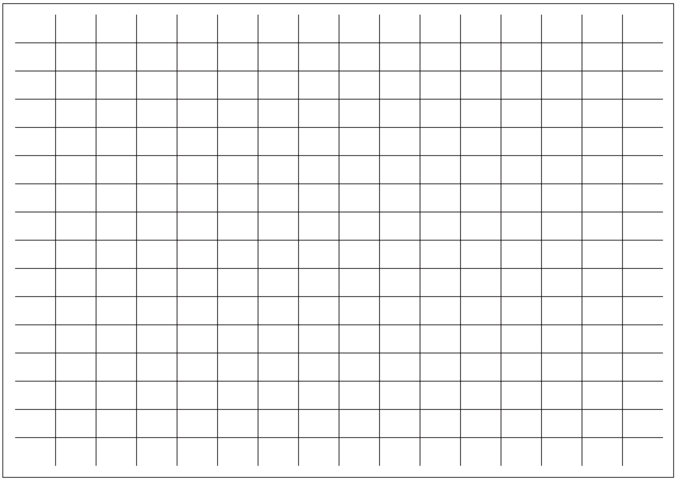
Use this text print to check color displacement, right angles, and straight lines.

a. Color Displacement

If color displacement is found, suspect a scar in the ITB and a fault in the drum unit.

b. Right Angle, Straight Lines

If the right angles or straight lines are not correct, suspect a fault in the laser exposure system, a fault in the shape of the registration (middle/outside) roller, and a fault in the secondary transfer outside roller.



F-13-3

13.2.7 MCYBk Horizontal Stripes (TYPE=10)

Use this test print to check the density of dark areas of individual colors, balance among colors, and white lines associated with development.

a. Solid Density of Individual Colors and Balance Among Colors

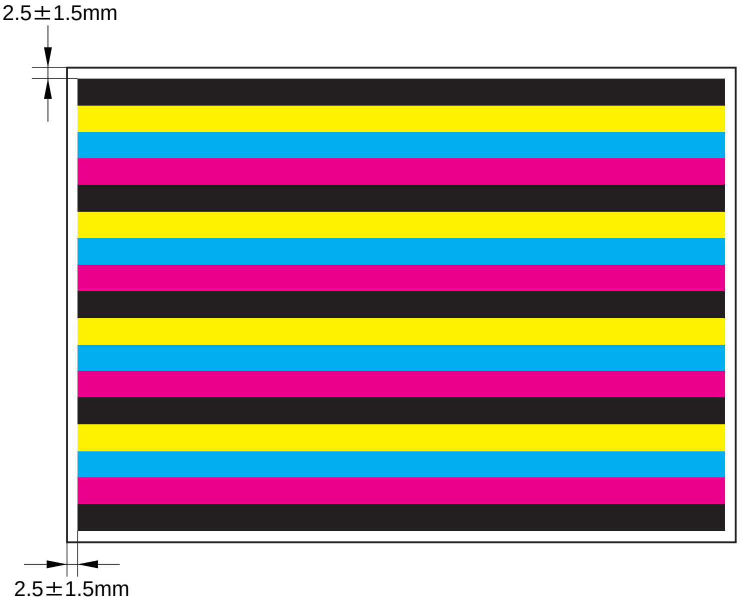
- the density must not be appreciably low (too light).
- if the density of a specific color is too low (too light), suspect a fault in the developing system.
- if the density of all colors is low (too light), suspect a fault in the laser exposure system and the transfer block.

b. While Line

If a white line is found in a specific color, suspect a fault in the development system of that particular color.

c. Uneven Density at the Front/Rear

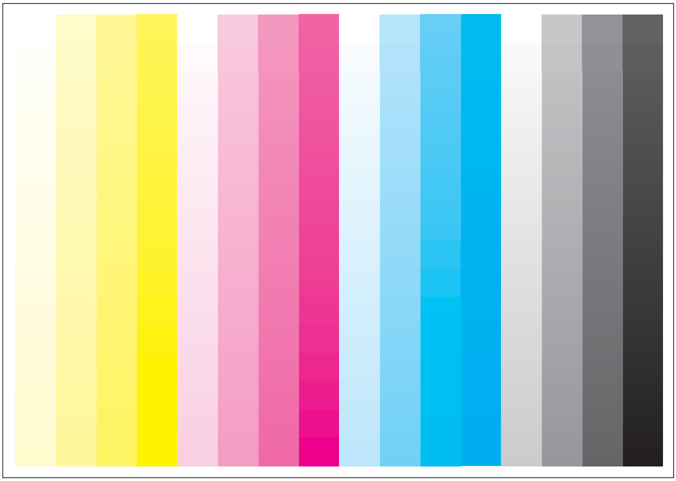
If uneven density is found in a specific color, suspect a fault in the development system of that particular color. If it is found in all colors, suspect a fault in the drum unit, ITB unit, and laser exposure system.



F-13-4

13.2.8 64-Gradation (TYPE=12)

Use this test print to check the gradation of Y, M, C, and Bk at once.



F-13-5

13.2.9 Full Color 16-Gradation (TYPE=14)

Use this test print to check the gray balance, gradation of individual colors (YMCBk), and fogging.

a. Gray Balance

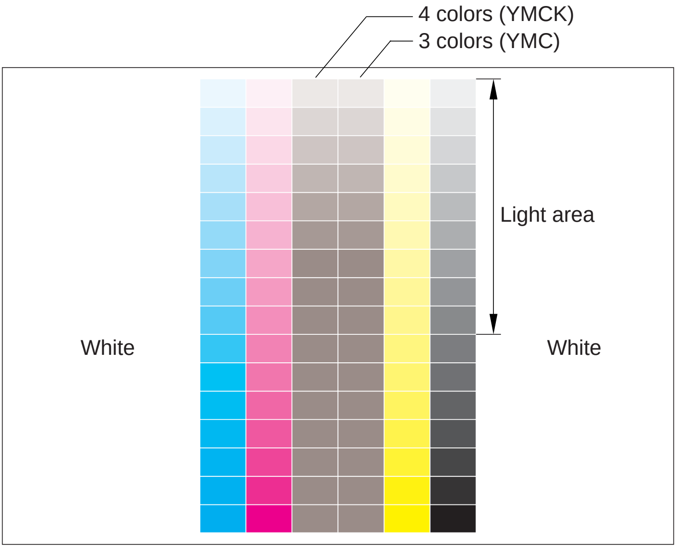
Check the grayscale area to see if the densities of all colors are even.

b. Gradation

Check the gradation of individual colors (YMCBk) and for any difference in color.

c. Fogging

If fogging is found in the white area, suspect a fault in the developing system, a fault in the drum unit, and poor adjustment of the laser exposure system.


4 colors (YMCK)
3 colors (YMC)
Light area
White
White

F-13-6

13.3 Troubleshooting

13.3.1 Symptoms

13.3.1.1 Symptoms

T-13-2

Item	Symptoms
Image fault	Solid black / Poor contact of connectors around process unit
	Overall light image on black area, uneven image
	Low density / Poor contact of connectors around process unit
	Uneven Density Along the Leading Edge in a Solid Color Image
	Uneven Density in the Form of a Feedscrew in Color Images
	Uneven Density in Halftone Images
	Colored Dots
	Uneven Density On Rough-Textured Paper
	Coarse Image in a Solid C Original
	Transfer Faults on Mono-Color Prints
	Color Displacement in Sub Scanning Direction
	Smeared of Colored Characters/Lines
	Vertical Lies in Halftone Images
	Image Fault Occurring at Specific Intervals
	Missing Color
	White Spots at 51mm Intervals
	Vertical Lines Caused by an ITB Cleaning Fault
	Vertical Lines
	Soiling of the Left/Right Margin on Double-Sided Prints (1st side)

Item	Symptoms
	Oil Lines in Vertical Direction
	Stray Toner
	Soiling as Dots at Drum Intervals
	Horizontal Line Caused by Impact from the Developing Rotary
	Soiling in the Form of a Ring
	Ghost Caused by a Bend on the ITB Cleaning Blade
	Faulty Color Reproduction Caused by an Error in Primary Transfer ATVC
Paper feed fault	Wrapping Around the Pressure Roller / Oil Traces / Separation Claw Traces / Wrinkle Traces
Malfunction	Fixing Web Displacement / 0A15/020D Jam Code
	Abnormal Noise from the Rotating Rotary
	Frequent DF Reading Glass Cleaning Message
	Frequent DF reading Glass Cleaning Message (user requesting disabling of the message)
Jam (Main Unit)	0103/0104 Jam Code Neuissiedler large-size/RA3 pickup fault
Error code	E020/E021/E061/E070/E078/E820 Error Code / Poor contact of connectors around process unit
	E020-03A0/E020-01A2 Error Code
	E061-0001 Error Code
	E070-0102 Error Code
	E070-0101/E070-0102/E070-0201/E070-0202/E070-0302 Error Code
	E542-8001 Error Code

13.3.1.2 Maintenance Recommendations for Components Around the Photosensitive Drum/Intermediate Transfer Unit in the Event of an Image Fault

If any of the following image faults has occurred as the result of wear on any of the durable components around the photosensitive drum or the intermediate transfer unit, refer to the tables that follow for guidance; the tables have been prepared in view of frequency of servicing, length of servicing work, and parts cost:

For a detailed description of individual faults, field remedies, and image samples, see their respective symptoms.

1. Transfer Fault on 2nd Side (2nd color; as first in the morning)

<Cause> Wear on Secondary Transfer Roller

T-13-3

Parts name (work)		Servicing intervals	Field with high labor cost	Field with low labor cost
[1]	Photosensitive drum (dry wiping)	images with spots	-	-
[2]	Photosensitive drum cleaning blade	195,000 images	replace	replace
[3]	Photosensitive drum scoop-up sheet	390,000 images	-	-
[4]	Photosensitive drum cleaner scoop-up sheet	150,000 prints	clean	clean
[5]	Photosensitive drum cleaner assembly (lower)	150,000 prints	clean	clean
[6]	Pre-transfer charging assembly rail	150,000 prints	clean	clean
[7]	Primary transfer roller	195,000 images	replace	replace
[8]	Primary transfer static eliminator	300,000 images	-	-
[9]	ITB(replacement;)	300,000 images	-	-
	ITB(cleaning of outer surface)	unit replacement	clean	clean
[10]	Secondary transfer inside roller	300,000 prints	replace	-

Parts name (work)		Servicing intervals	Field with high labor cost	Field with low labor cost
[11]	Patch detection sensor (cleaning)	250,000 images	clean	clean
[12]	ITB inside roller, scraper (cleaning)	Primary transfer roller replacement	clean	clean
[13]	ITB cleaning blade	195,000 images	replace	replace
[14]	ITB cleaner scoop-up sheet	150,000 prints	replace	replace
[15]	Secondary transfer outside roller	195,000 images	replace *	replace *

* : required

Line/White Spot, Color Displacement at 51mm Intervals

<Cause> Wear on Primary Transfer Roller, Soiling Inside ITB Unit

T-13-4

Parts name (work)		Servicing intervals	Field with high labor cost	Field with low labor cost
[1]	Photosensitive drum (dry wiping)	images with spots	-	-
[2]	Photosensitive drum cleaning blade	195,000 images	replace	replace
[3]	Photosensitive drum scoop-up sheet	390,000 images	-	-
[4]	Photosensitive drum cleaner scoop-up sheet (lower)	150,000 prints	clean	clean
[5]	Photosensitive drum cleaner assembly (lower)	150,000 prints	clean	clean
[6]	Pre-transfer charging assembly rail	150,000 prints	clean	clean
[7]	Primary transfer roller	195,000 images	replace *	replace *
[8]	Primary transfer static eliminator	300,000 images	-	-

Parts name (work)		Servicing intervals	Field with high labor cost	Field with low labor cost
[9]	ITB(replacement;)	300,000 images	-	-
	ITB(cleaning of outer surface)	unit replacement	clean	clean
[10]	Secondary transfer inside roller	300,000 prints	replace	-
[11]	Patch detection sensor (cleaning)	250,000 images	clean	clean
[12]	ITB inside roller, scraper (cleaning)	Primary transfer roller replacement	clean *	clean *
[13]	ITB cleaning blade	195,000 images	replace	replace
[14]	ITB cleaner scoop-up sheet	150,000 prints	replace	replace
[15]	Secondary transfer outside roller	195,000 images	replace	replace

* : required

3.Soiling in Dots at Drum Intervals, Slippage Under Cleaner (ghost)

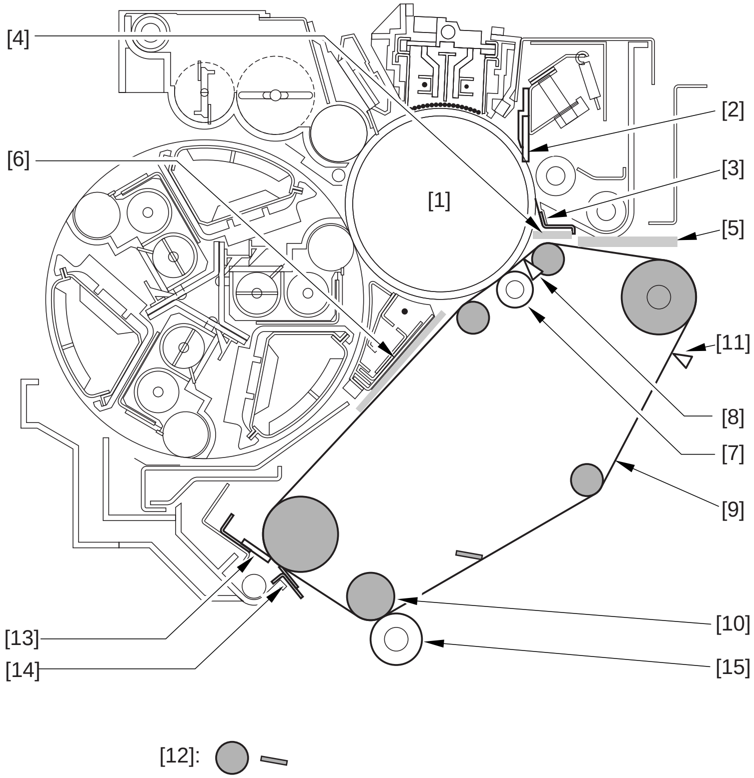
<Cause> Wear on Photosensitive Drum Cleaning Blade/ITB Cleaning Blade

T-13-5

Parts name (work)		Servicing intervals	Field with high labor cost	Field with low labor cost
[1]	Photosensitive drum (dry wiping)	images with spots	clean *	clean *
[2]	Photosensitive drum cleaning blade	195,000 images	replace *	replace *
[3]	Photosensitive drum scoop-up sheet	390,000 images	-	-
[4]	Photosensitive drum cleaner scoop-up sheet (lower)	150,000 prints	clean	clean
[5]	Photosensitive drum cleaner assembly (lower)	150,000 prints	clean	clean
[6]	Pre-transfer charging assembly rail	195,000 images	clean	clean
[7]	Primary transfer roller	150,000 prints	replace	replace
[8]	Primary transfer static eliminator	300,000 images	-	-

Parts name (work)		Servicing intervals	Field with high labor cost	Field with low labor cost
[9]	ITB(replacement;)	300,000 images	-	-
	ITB(cleaning of outer surface)	unit replacement	clean	clean
[10]	Secondary transfer inside roller	300,000 prints	replace	-
[11]	Patch detection sensor (cleaning)	250,000 images	clean	clean
[12]	ITB inside roller, scraper (cleaning)	Primary transfer roller replacement	clean	clean
[13]	ITB cleaning blade	195,000 images	replace *	replace *
[14]	ITB cleaner scoop-up sheet	150,000 prints	replace	replace
[15]	Secondary transfer outside roller	195,000 images	replace	replace

* : required



F-13-7

13.3.2 Image Faults

13.3.2.1 Solid Image

13.3.2.1.1 Solid black / Poor contact of connectors around process unit

For details of error codes, see the following:
E020-0080/E020-0180/E020-0280/E020-0380/E020-0090/E020-0190/E020-0290/E020-0091/E020-0191/E020-0291/E020-0092/E020-0192/E020-0292/E020-0392/E020-00A0/E020-01A0/E020-02A0/E020-03A0/E020-00A1/E020-01A1/E020-02A1/E020-03A1/E020-00A2/E020-01A2/E020-02A2/E020-03A2/E020-00A3/E020-01A3/E020-02A3/

E020-03A3/E021-0001/E021-0002/E061-0005/E061-0007/E070-0000/E070-0001/E070-0002/E070-0003/E078-0001/E820-0020

Cause

When drawing out the Pkit as part of servicing work, you need to disconnect and then connect the connectors. When repeated, their internal pins can start to suffer from poor connection, resulting in wrong operation/detection.

Description

A break in the harness can occur when the harness is disconnected/connected about 30 times.

The following is a list of harnesses that are subject to a break with descriptions of symptoms expected when a break occurs.

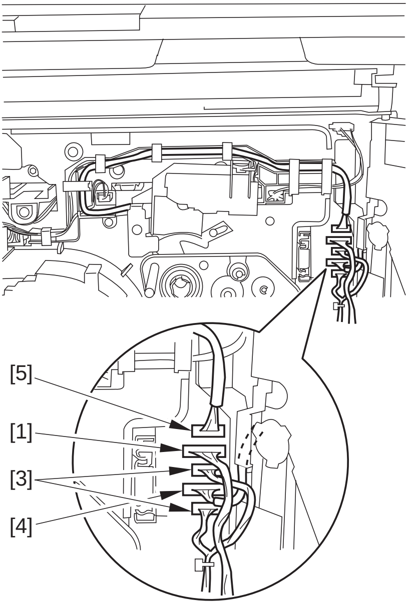
T-13-6

Name (part No.)		
Pin No.	Connection load (notation)	Expected error condition (symptom in response to error)
[1]ITB cleaner harness (FM2-0946) connector: J214L		
1/2/3/4	ITB cleaner shift motor (M21)	E078-0001 The motor stops.
5/6/7	ITB cleaning HP sensor (PS23)	E078-0001 The sensor fails to operate
8/9/10	process unit cooling fan (FM7)	E820-0002 The fan stops. The machine fails to detect rotation.
11/12	post-charging assembly cleaning motor (M27)	image fault (vertical line) The motor stops.
[2]PKIT harness (FM2-0947) connector: J201LA/J201B		
1/2	primary charging wire cleaning motor (M26)	image fault (vertical line) The motor stops.

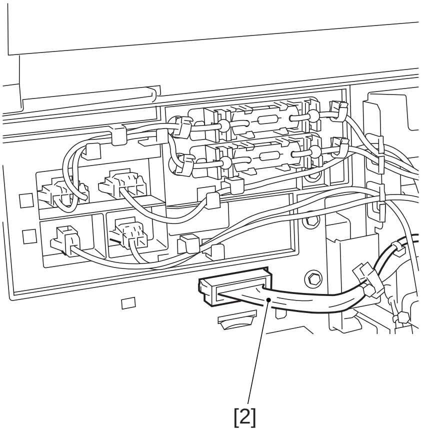
3/4/5	color toner cartridge sensor (PS26)	message calling for the bottle. The absence of a bottle is wrongly detected in the presence of a bottle.
		The presence of a bottle is wrongly detected in the absence of a bottle.
6/7	pre-exposure LED (LED1)	image fault (solid black) E061-0005 The LED fails to go on.
8/9/10/11	color toner level sensor (PS25)	message calling for replacement of toner The absence of toner is wrongly detected in the presence of toner.
		image fault (low density) E020-**92 The presence of toner is wrongly detected in the absence of toner.
12/13/14	black toner level sensor (TS1)	2-min supply error E020-00FF black developing assembly excess toner supply The absence of toner is wrongly detected in the presence of toner.
		black developing assembly without toner -> image fault (low density) The presence of toner is wrongly detected in the absence of toner.
15/16	NC	
1/2	developing rotary locking solenoid (SL10)	E021-0002 The solenoid fails to operate
3/4/5	developing rotary solenoid sensor (PS8)	E021-0002 The sensor fails to operate.
6/7/8	developing rotary HP sensor (PS19)	E021-0001 The sensor fails to operate.

9-14	ATR sensor (PS4)	E020-**A0 E020-**A1 E020-**A2 E020-**A3 An error sensor value is detected
15/16	ATR sensor shutter solenoid (SL12)	E020-**A0 E020-**A1 E020-**A2 E020-**A3 A sensor error value is detected.
[3]ITB harness (FM2-0949) connector: J261L/J267L		
1/2	patch image read sensor shutter solenoid (SL11)	E020-**81 E020-**90 E020-**91 A sensor error value is detected
3-8	patch image read sensor (PS2)	E020-**81 E020-**90 E020-**91 A sensor error value is detected
1/2/3	ITB HP sensor B (PS30)	E070-00** The sensor fails to operate.
4/5/6	ITB sensor A (PS1)	E070-00** The sensor fails to operate.
[4]Hopper harness (FM2-0950) connector: J301L		
1/2	hopper stirring motor (M23)	black developing assembly without toner -> image fault (low density) The motor stops.

3/4/5	hopper inside toner level sensor (TS2)	2-min supply error (reset by opening/ closing the door) hopper excess toner supply The absence of toner is wrongly detected in the presence of toner.
		hopper without toner -> black developing assembly inside without toner The job stops. The presence of toner is wrongly detected in the absence of toner.
6/7	black toner supply motor (M25)	hopper without toner -> black developing assembly inside without toner The job stops. The hopper is without toner.
8/9/10	hopper open/closed sensor (PS28)	message calling for replacement of the bottle, not permitting recovery. remains closed.
		The black cartridge motor stops. remains closed
[5]Poteantial sensor harness (FL2-0986) connector: J407L		
1-6	potential sensor	E061-0007 An error potential level is detected.



F-13-8



F-13-9

Field Remedy

Replace the connector with the harness intact.

13.3.2.2 Light Image / Weak Density

13.3.2.2.1 Overall light image on black area, uneven image

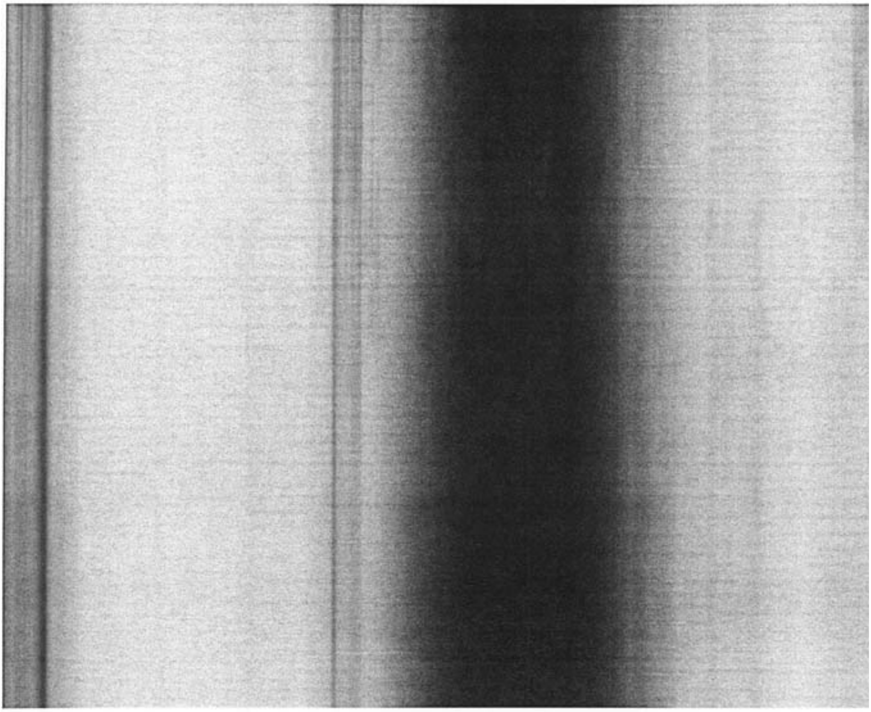
[Inspected by Canon Inc.]

Cause

As a result of inspection, it was found that this symptom occurred for the following reasons: The black developing ass'y was not supplied with toner because the 3P connector of the toner level sensor inside the black developing ass'y was not securely fitted. Finally, the toner level became low and light image or uneven image occurred.

Field Remedy

1. Make sure that bit8 in service mode [COPIER> DC-CON> I/O> P009] shows "1", which means that the toner level sensor detects toner remaining.
2. Pull out the AP kit from the main unit and unplug/reinsert the 3P connector once again.
3. Check the service mode value in Step 1 once again. If bit8 shows "0", this symptom might have occurred because of poor contact of the 3P connector. In such a case, the toner level is low, so replenish the black developing ass'y with toner in service mode [COPIER> Function> INSTALL> TONER-S> OK].



F-13-10

13.3.2.2.2 Low density / Poor contact of connectors around process unit

For details of error codes, see the following:
E020-0080/E020-0180/E020-0280/E020-0380/E020-0090/E020-0190/E020-0290/E020-0091/E020-0191/E020-0291/E020-0092/E020-0192/E020-0292/E020-0392/E020-00A0/E020-01A0/E020-02A0/E020-03A0/E020-00A1/E020-01A1/E020-02A1/E020-03A1/E020-00A2/E020-01A2/E020-02A2/E020-03A2/E020-00A3/E020-01A3/E020-02A3/E020-03A3/E021-0001/E021-0002/E061-0005/E061-0007/E070-0000/E070-0001/E070-0002/E070-0003/E078-0001/E820-0020

Cause

When drawing out the Pkit as part of servicing work, you need to disconnect and then connect the connectors. When repeated, their internal pins can start to suffer from poor connection, resulting in wrong operation/detection.

Description

A break in the harness can occur when the harness is disconnected/connected about 30 times.

The following is a list of harnesses that are subject to a break with descriptions of symptoms expected when a break occurs.

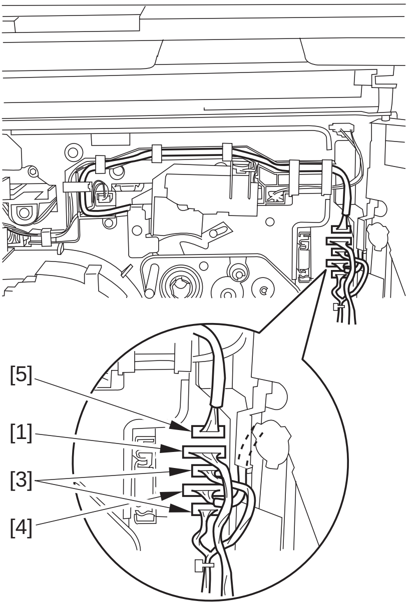
T-13-7

Name (part No.)		
Pin No.	Connection load (notation)	Expected error condition (symptom in response to error)
[1]ITB cleaner harness (FM2-0946) connector: J214L		
1/2/3/4	ITB cleaner shift motor (M21)	E078-0001 The motor stops.
5/6/7	ITB cleaning HP sensor (PS23)	E078-0001 The sensor fails to operate
8/9/10	process unit cooling fan (FM7)	E820-0002 The fan stops. The machine fails to detect rotation.
11/12	post-charging assembly cleaning motor (M27)	image fault (vertical line) The motor stops.
[2]PKIT harness (FM2-0947) connector: J201LA/J201B		
1/2	primary charging wire cleaning motor (M26)	image fault (vertical line) The motor stops.
3/4/5	color toner cartridge sensor (PS26)	message calling for the bottle. The absence of a bottle is wrongly detected in the presence of a bottle.
		The presence of a bottle is wrongly detected in the absence of a bottle.

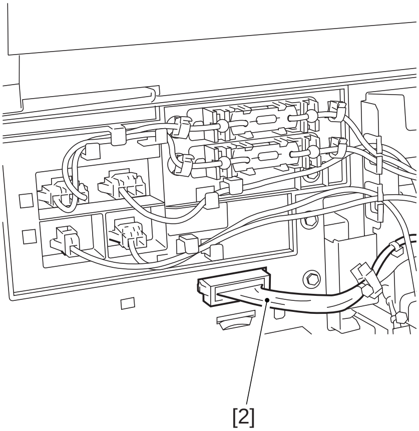
6/7	pre-exposure LED (LED1)	image fault (solid black) E061-0005 The LED fails to go on.
8/9/10/11	color toner level sensor (PS25)	message calling for replacement of toner The absence of toner is wrongly detected in the presence of toner.
		image fault (low density) E020-**92 The presence of toner is wrongly detected in the absence of toner.
12/13/14	black toner level sensor (TS1)	2-min supply error E020-00FF black developing assembly excess toner supply The absence of toner is wrongly detected in the presence of toner.
		black developing assembly without toner -> image fault (low density) The presence of toner is wrongly detected in the absence of toner.
15/16	NC	
1/2	developing rotary locking solenoid (SL10)	E021-0002 The solenoid fails to operate
3/4/5	developing rotary solenoid sensor (PS8)	E021-0002 The sensor fails to operate.
6/7/8	developing rotary HP sensor (PS19)	E021-0001 The sensor fails to operate.
9-14	ATR sensor (PS4)	E020-**A0 E020-**A1 E020-**A2 E020-**A3 An error sensor value is detected

15/16	ATR sensor shutter solenoid (SL12)	E020-**A0 E020-**A1 E020-**A2 E020-**A3 A sensor error value is detected.
[3]ITB harness (FM2-0949) connector: J261L/J267L		
1/2	patch image read sensor shutter solenoid (SL11)	E020-**81 E020-**90 E020-**91 A sensor error value is detected
3-8	patch image read sensor (PS2)	E020-**81 E020-**90 E020-**91 A sensor error value is detected
1/2/3	ITB HP sensor B (PS30)	E070-00** The sensor fails to operate.
4/5/6	ITB sensor A (PS1)	E070-00** The sensor fails to operate.
[4]Hopper harness (FM2-0950) connector: J301L		
1/2	hopper stirring motor (M23)	black developing assembly without toner -> image fault (low density) The motor stops.
3/4/5	hopper inside toner level sensor (TS2)	2-min supply error (reset by opening/ closing the door) hopper excess toner supply The absence of toner is wrongly detected in the presence of toner.
		hopper without toner -> black developing assembly inside without toner The job stops. The presence of toner is wrongly detected in the absence of toner.

6/7	black toner supply motor (M25)	hopper without toner -> black developing assembly inside without toner The job stops. The hopper is without toner.
8/9/10	hopper open/closed sensor (PS28)	message calling for replacement of the bottle, not permitting recovery. remains closed.
		The black cartridge motor stops. remains closed
[5]Poteantial sensor harness (FL2-0986) connector: J407L		
1-6	potential sensor	E061-0007 An error potential level is detected.



F-13-11



F-13-12

Field Remedy

Replace the connector with the harness intact.

13.3.2.3 Uneven Density

13.3.2.3.1 Uneven Density Along the Leading Edge in a Solid Color Image

Cause

In a H/H environment, toner tends to become moist and have less bonding with carrier, at times sticking directly to the developing cylinder. As a result, the ratio of toner to carrier will increase, causing the leading edge of the image to become darker because of the extra toner from the developing cylinder (as when a solid color image is produced).

Field Remedy

Perform the following steps to decrease the toner-to-carrier ratio by 1%:

1) In service mode, decrease the patch target value of the color in question:

- in the case of Y, lower the setting by '50' in COPIER>ADJUST>DENS>P-SGNL-Y.
- in the case of M, lower the setting by '50' in COPIER>ADJUST>DENS>P-SGNL-M.
- in the case of C, lower the setting by '50' in COPIER>ADJUST>DENS>P-SGNL-C.

⚠To change the setting, enter the value obtained by subtracting '50' from the present value (i.e., not '-50').

For instance, if the present value is '450', enter '400'.

2) When the machine has entered a ready state, make 2 prints of a full-page solid image of the color in question.

COPIER>TEST>PG>TYPE: 5

COPIER>TEST>PG>DENS-Y/M/C/K: for the color in question, '255'; for other colors, '0'

COPIER>TEST>PG>TYPE>PG-PICK: select the source of paper loaded with paper (3: cassette 3; 4: cassette 4)

COPIER>TEST>PG>TYPE>2-SIDE: 1

COPIER>TEST>PG>TYPE>PG-QTY:2

3) Execute [P-PRINT]. (in service mode, COPIER>FUNCTION>MISC-P>P-PRINT)

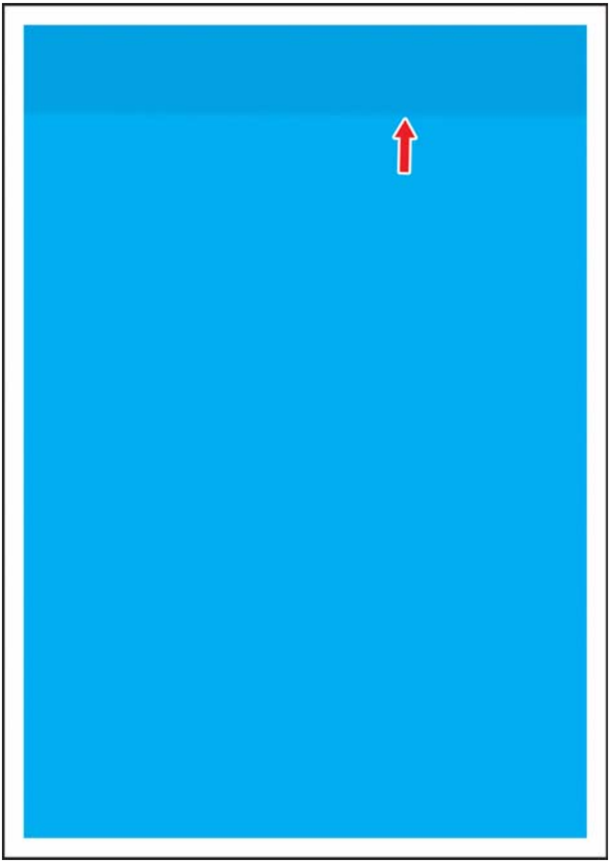
4) Put the output in the service book case for storage. If the case contains previous output, replace it with the new output.

Note:

This symptom tends to be most conspicuous under the following conditions:

- high humidity environment
- 1st print after the machine has been left alone for a long time
- C mono solid image
- 37 mm or so from the leading edge of the image

Image Sample



F-13-13

13.3.2.3.2 Uneven Density in the Form of a Feedscrew in Color Images

Cause

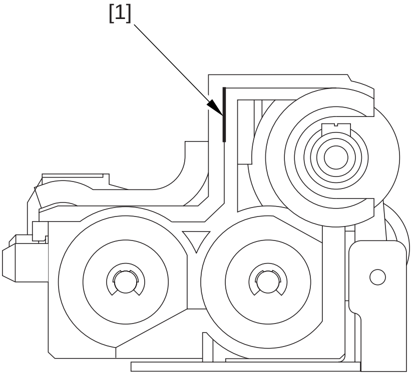
The developing assembly lid is not fitted correctly when a color toner is replaced.

Field Remedy

Take out the color developing assembly in question from the machine, and fit its lid so that there is no gap.

⚠

Be sure to force the lid against the developing assembly so that there is no gap in the area [1] indicated in the diagram, i.e., not permitting insertion of a transparency.

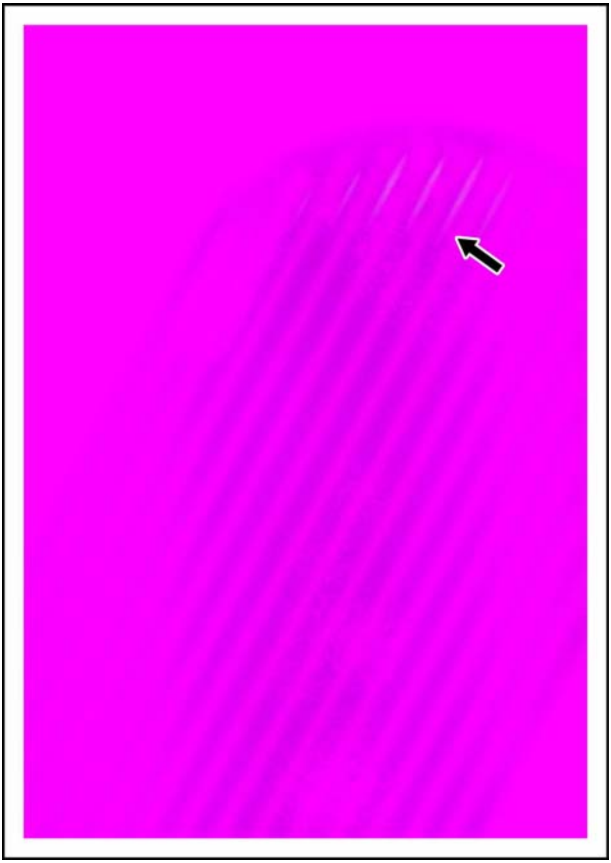


F-13-14

⚠

When tightening the screw, be sure to take care so that the shavings of the lid of the developing assembly or its lid will not enter the assembly (i.e., shavings occurring as a result of tightening the screw).

Image Sample



F-13-15

13.3.2.3.3 Uneven Density in Halftone Images

Description

In a high temperature/humidity environment, the symptom can start to occur relatively early (around 100,000 images) after replacement of the primary charging wire/cleaning pad.

The uneven density tends to be conspicuous in color half-tone images.

The uneven density tends to be found at the same area in all colors.

Cause

The symptom is caused by dirt on the primary charging wire or the dust-blocking glass.

In particular, the cleaning pad tends to start deteriorating early (about 100,000 images) in a high temperature/humidity environment.

Field Remedy

1) Clean the dust-blocking glass.

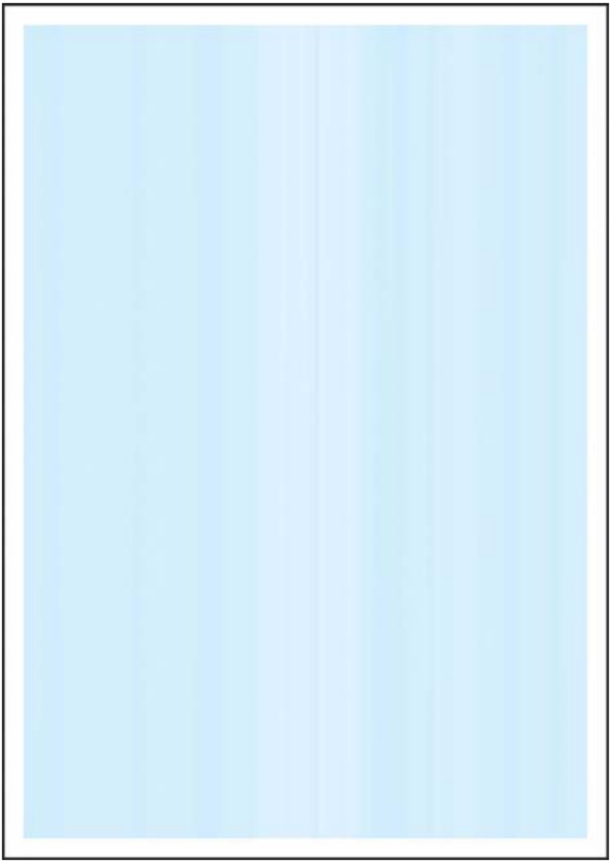
2) If the primary charging wire is approaching the end of its life, replace it. Be sure also to replace the cleaning pad at the same time.

3) If the area of friction of the cleaning pad is worn or deformed, replace th pad.

4) Execute the following in service mode to clean the charging wire: COPIER>FUNCTION>CLEANING>WIRE-CLN.

Memo:

The estimated life of the primary charging wire is 500,000 images: the cleaning pad is 500,000 images (however, in a high temperature/humidity environment, 100,000 images).



F-13-16

13.3.2.3.4 Colored Dots

0005-8491

iR C6800 / iR C6800N

Cause

When the 2nd and subsequent colors are developed in an M mono halftone area of full color printing, carrier can stick to the drum.

The presence of such carrier causes electrical discharge during primary transfer in the 2nd and subsequent colors, causing the polarity of the M toner on the intermediate transfer belt to reverse.

As a result, some of the M toner on the intermediate belt is returned to the drum, causing the image to show dots.

Field Remedy

Execute the following service mode item to adjust the potential used to remove fogging caused by a developing bias:
COPIER>ADJUST>V-CONT>VBACK-Y, M, C; set all to '-5' and execute; if the results are not satisfactory, set all to '10'.

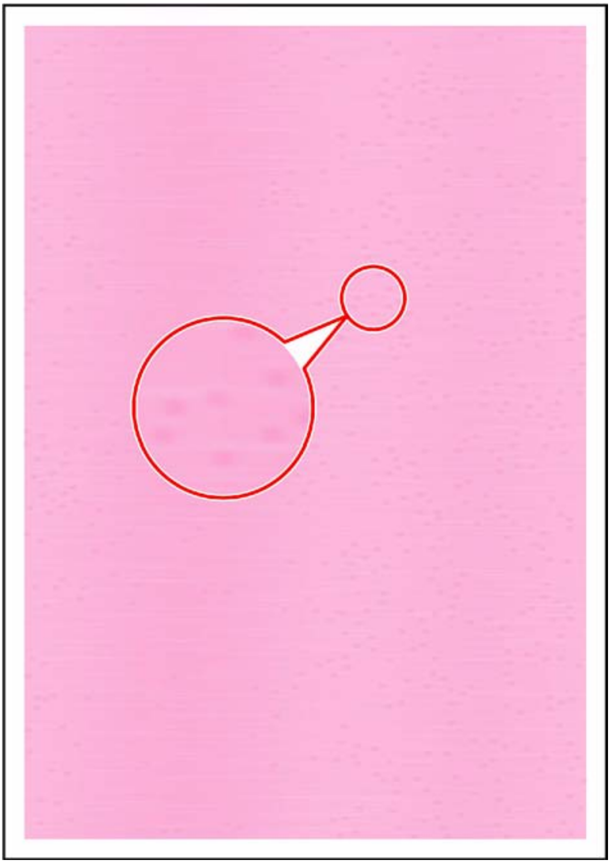
⚠

If you have made a change to the setting of the foregoing service mode item (adjustment of potential to remove fogging caused by developing bias), you must be sure to return it to the default setting ('0') when you replace the toner or the developing assembly of the color in question. If you fail to do so, the images may once again start to have fogging.

Description

This symptom can occur as a combination of various factors; in other words, although the variation among individual bias outputs and the variation among carrier production lots may be well within allowance, the combined variation can lead to colored dots in images. Improvements have been made and the symptom is now at a level not causing any practical problem; it, however, can prove to be relatively noticeable when certain types of originals are used (although only to a negligible level).

Image Sample



F-13-17

13.3.2.3.5 Uneven Density On Rough-Textured Paper

Cause

When a Bk solid image is copied on rough-textured paper (not of a recommended type), the ups and downs on the surface of the paper can cause a shortage of transfer current, causing white spots and uneven density in images.

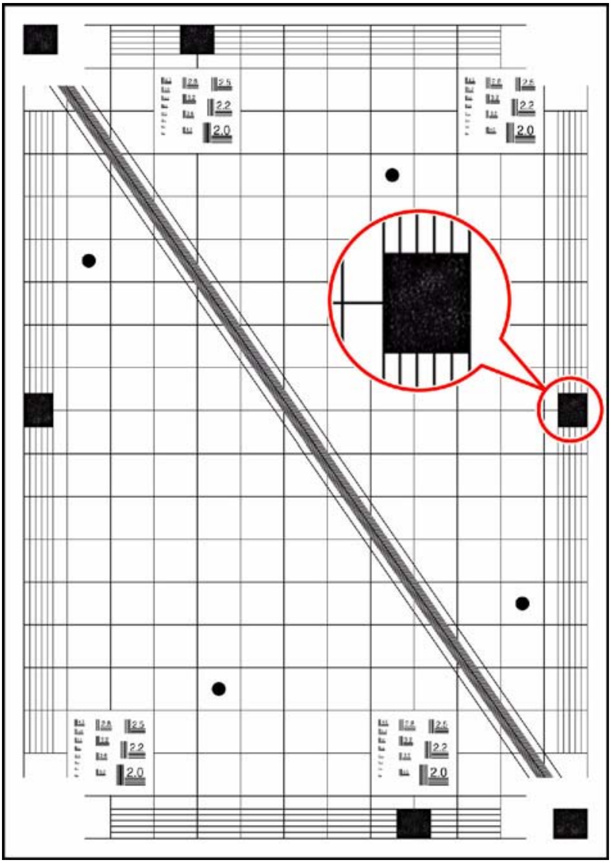
Field Remedy

Execute the following service mode to decrease the pre-transfer charging bias:
COPIER>ADJUST>HV-TR>PRE-TR; set it to '250'.

Description

This symptom is most conspicuous when a Bk solid image is copied on rough-textured paper (not of a recommended type). Advise the user to avoid rough-textured paper.

Image Sample

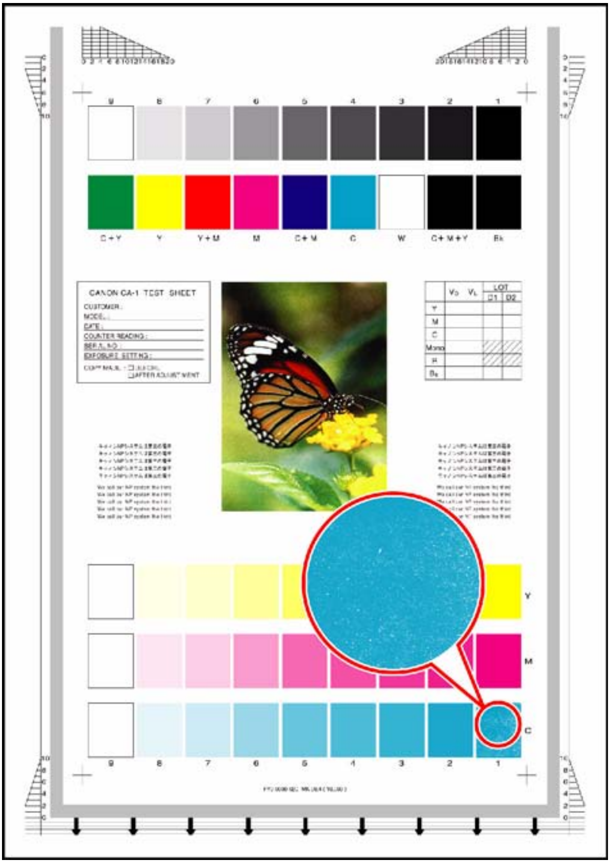


F-13-18

13.3.2.3.6 Coarse Image in a Solid C Original

Cause

When a solid C original is used, the machine will faithfully reproduce any uneven surface of the original communicated by its reader unit. Moreover, the machine's controller possesses characteristics that tend to amplify a minute difference in an area of high density, causing any change in an area of a solid C original to be amplified and its print to show a coarse image.

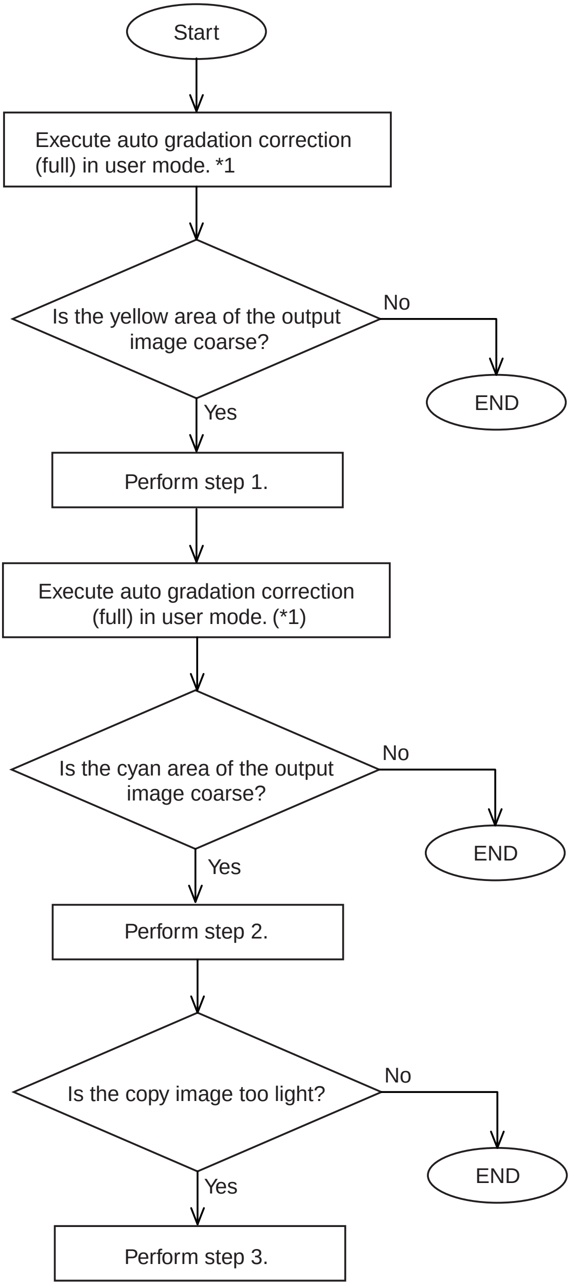

CANON CA-1 TEST SHEET
C+Y
Y
Y+M
M
C+M
C
W
C+M+Y
Bk
Y
M
C

F-13-19

Field Remedy

If this symptom is noted, go through the following flow of work to correct it:

No description page


Start
Execute auto gradation correction (full) in user mode. *1
Is the yellow area of the output image coarse?
No
END
Yes
Perform step 1.
Execute auto gradation correction (full) in user mode. (*1)
Is the cyan area of the output image coarse?
No
END
Yes
Perform step 2.
Is the copy image too light?
No
END
Yes
Perform step 3.

F-13-20

*1: Normally, as many as 3 copies are made in full mode of auto gradation correction. Here, however, stop full correction when the 1st copy has been made to save on work time.

<Step 1>

Adjust the gamma correction table of the controller as follows:

1) Set "3" to the following in service mode: COPIER>OPTION>BODY>GLUTLV-C.

2) Set "3" to the following in service mode: COPIER>OPTION>BODY>GLUTMX-C.

<Step 2>

1) Set "-3" or "-4" to the following in service mode: COPIER>ADJUST>COLOR>ADJ-C.

<Step 3>

1) Set "-1" or "-2" to the following in service mode: COPIER>ADJUST>COLOR>ADJ-C.

Description

This symptom does not occur while the printer unit is used on its own.

This symptom tends to be most conspicuous when a C mono color image is copied. Although the CA-1 Text Chart, in particular, is subject to this symptom, the degree of the symptom is not serious enough to cause practical problems to the user.

13.3.2.3.7 Transfer Faults on Mono-Color Prints

Cause

The machine executes primary transfer ATVC control at specific intervals when making mono-color prints. When there is a change in the environment, however, the machine can at times fail to execute the control, resulting in transfer faults.

Field Remedy

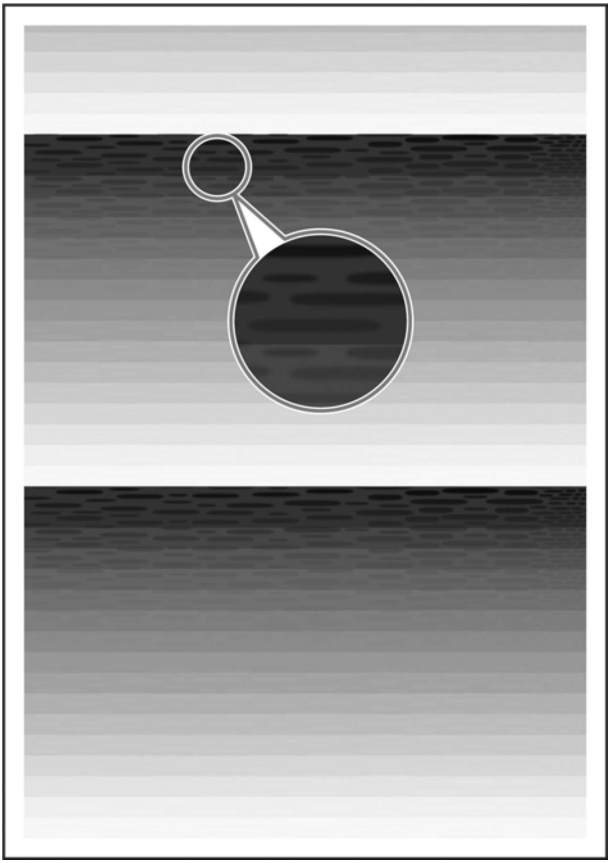
Perform the following work:

Execute the service mode item used to change the intervals of executing primary transfer control: i.e., set "1" to the following: COPIER>OPTION>BODY>INTROT-1.

Description

In the case of color prints, the machine executes ATVC control for every job; as such, the output is of the symptom.

Image Sample



F-13-21

13.3.2.4 Out of Focus

13.3.2.4.1 Color Displacement in Sub Scanning Direction

Cause

1.the shock occurring when the ITB cleaning blade goes on or off causes the transfer to the ITB to be displaced.

2.the shock occurring when the secondary transfer outside roller goes on or off causes the transfer to the ITB to be displaced.

Filed Remedy (cause 1)

The following 3 remedies are offered for the field:

1. adjustment of the wire start position in sub scanning direction
2. change to the primary transfer color-to-color current level

<Adjustment>

1. Adjusting the Wire Start Position in Sub Scanning Direction

1) Print out a Rainbow Chart (by executing 31 in service mode: COPIER>TEST>PG>TYPE).

2) Check the printed chart to find out which color is displaced. (The machine is designed as a C-base machine; use yellow to serve as the point of reference).

3) Adjust the write start position of the displaced color in service mode.

- if Y is displaced on the 1st side, execute the following in service mode: COPIER>ADJUST>IMAGE-REG>REG-V-Y

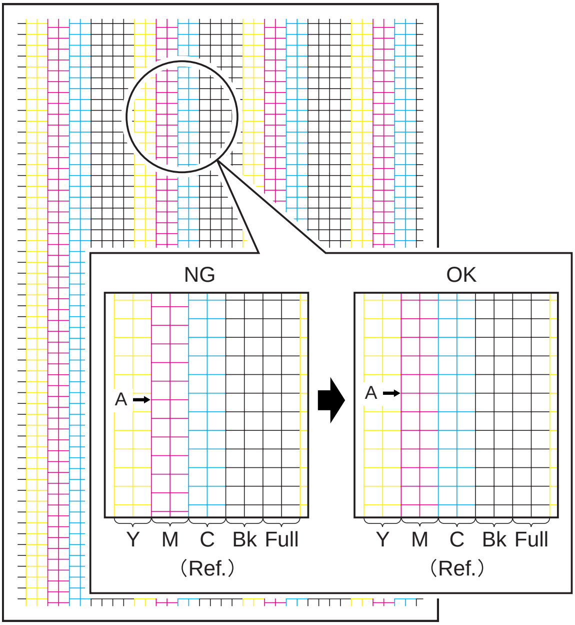
- if M is displaced on the 1st side, execute the following in service mode: COPIER>ADJUST>IMAGE-REG>REG-V-M

- if K is displaced on the 1st side, execute the following in service mode: COPIER>ADJUST>IMAGE-REG>REG-V-K

- if Y is displaced on the 2nd side, execute the following in service mode: COPIER>ADJUST>IMAGE-REG>REG2-V-Y

- if M is displaced on the 2nd side, execute the following in service mode: COPIER>ADJUST>IMAGE-REG>REG2-V-M

- if K is displaced on the 2nd side, execute the following in service mode: COPIER>ADJUST>IMAGE-REG>REG2-V-K



F-13-22

An increase of '1' made to the setting will move the write start position of the selected color by a single pixel (about 0.04 mm).
If you have initialized the DC controller PCB or if you have replaced the DC controller PCB, be sure to enter the values indicated on the service label

- range of adjustment: -10 to +10 (unit: pixel; at time of shipment: 0)

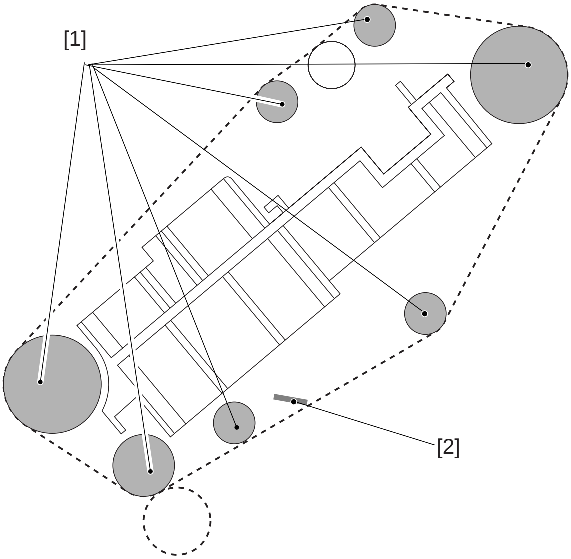
2. Changing the Primary Transfer Color-to-Color Current Level

Set '-2' to the following in service mode: COPIER>ADJUST>HV-TR>1TR-STS1.
range of adjustment: -5 to 0 (unit: 2 yA; at time of shipment: 0)

Filed Remedy (cause 2)

1) Replace the primary transfer roller.

2) Dry wipe the rollers [1] and the scraper [2] shown in the following figure with lint-free paper.



F-13-23

Memo:
When the primary transfer roller becomes worn, shavings from its surface will likely move on the intermediate transfer belt to reach all rollers inside the intermediate transfer unit. The presence of shavings between the belt and the rollers will hinder the movement of the belt, possibly causing displacement of color in sub scanning direction.
The shavings, in passing, have a high degree of viscosity, and tends to resist removal from the rollers.

13.3.2.4.2 Smeared of Colored Characters/Lines

Cause
When 2-color (blue, green, red) is used to form an image of characters or lines, an excess of toner deposit can cause the layer of toner to grow too thick during the first transfer of the second color, thus leading to smears of toner (character edges) on the intermediate transfer belt because of separation discharges.

Field Remedy

Execute the following service mode item to decrease the amount of toner that is deposited for individual colors:

set '-3' to the following: COPIER>ADJUST>COLOR>ADJ-Y
set '-3' to the following: COPIER>ADJUST>COLOR>ADJ-M
set '-3' to the following: COPIER>ADJUST>COLOR>ADJ-C
set '-3' to the following: COPIER>ADJUST>COLOR>ADJ-K

Note:

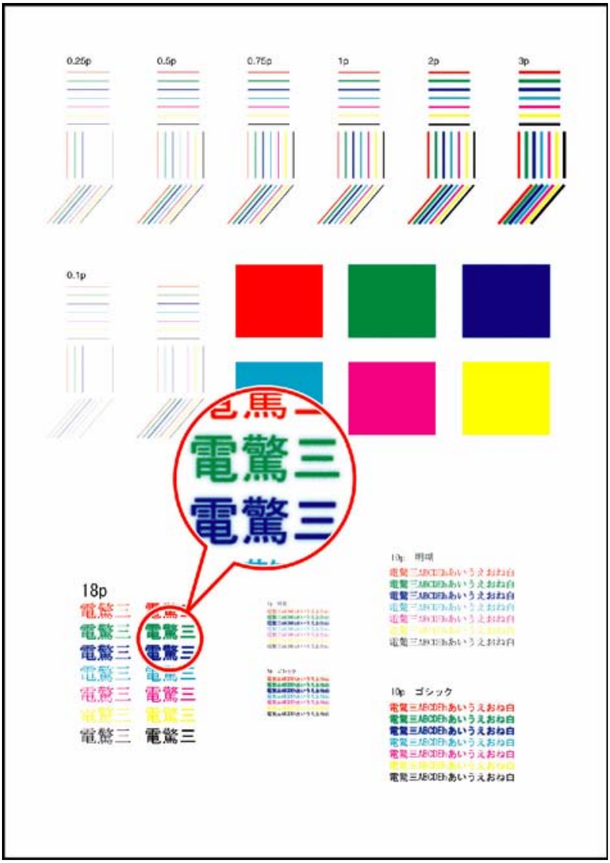
If the images are too light after the change, set the item to '-1' to '-2'.

When you have executed these items, be sure to execute auto gradation correction (full; image characteristics corrective control) in user mode so as to maintain the optimum level of density.

Description

This symptom can also be caused by combined factors; in other words, the resistance of the intermediate transfer belt and the amount of deposited toner may well be within allowance individually, they can trigger the symptom when combined. Improvements have been made so that the level of the symptom is equal to that found in past machines; if the user points it out, however, provide the foregoing remedy. The fault, however, is of a negligible level.

Image Sample


0.25p
0.5p
0.75p
1p
2p
3p
0.1p
18p
電驚三
10p 明朝
10p ゴシック

F-13-24

13.3.2.5 Partially Blank/Streaked

13.3.2.5.1 Vertical Lies in Halftone Images

Description

This fault tends to occur in halftone images.

Cause

The scoop-up sheet of the photosensitive drum cleaner bends over at time of replacement, scraping the surface of the photosensitive drum in the form of lines.

Field Remedy

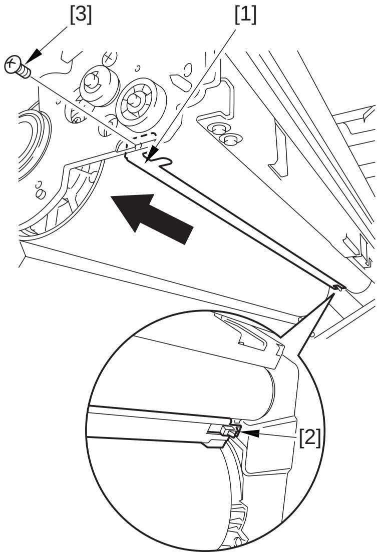
Clean the photosensitive drum, or replace it.

Replace the scoop-up sheet of the photosensitive drum.

Note:

Fit the scoop-up sheet of the photosensitive drum properly.

1) Engage the hole at the rear of the scoop-up sheet [1] of the photosensitive drum on the hook [2]; then, pull it toward the front, and fix it in position using the screw [3]. While doing so, be sure that the tip of the scoop-up sheet is not bent in the gap between the cartridge and the photosensitive drum.



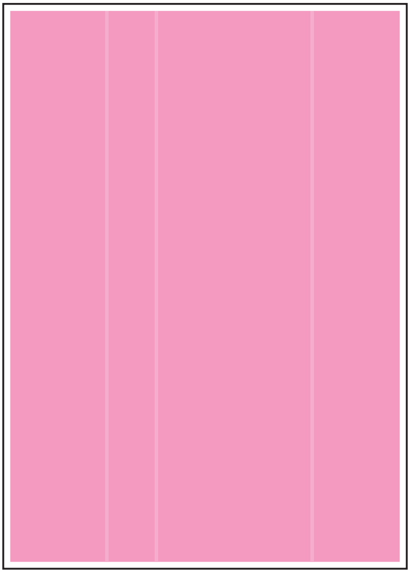
F-13-25

⚠

Checks to Make After Fitting the Photosensitive Drum Scoop-Up Sheet

1. After mounting the photosensitive drum, check to make sure that the scoop-up sheet is not warping or bent from below.

2. If wrapped or bent, the scoop-up sheet of the photosensitive drum is likely to lead to deformation. The photosensitive drum must always be rotated in counterclockwise direction only, NEVER in clockwise direction.



F-13-26

13.3.2.5.2 Image Fault Occurring at Specific Intervals

Description

This image fault occurs in main scanning direction.

Field Remedy

By referring to the following table of intervals, clean or replace the part identified:

T-13-8

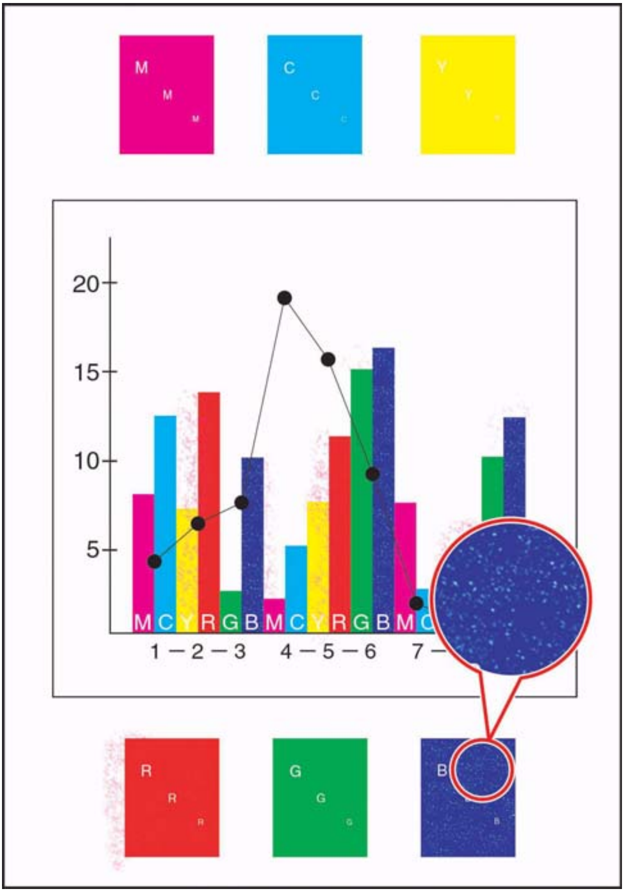
Roller intervals (approx.)	**Part**
60 mm	black developing cylinder
37 mm	color developing cylinder
51 mm	primary transfer roller
63 mm	secondary transfer inside roller

Roller intervals (approx.)	Part
75 mm	secondary transfer outside roller
168 mm	ITB
264 mm	photosensitive drum
188 mm	fixing roller
188 mm	pressure roller
113 mm	outside heating roller

13.3.2.5.3 Missing Color

Cause

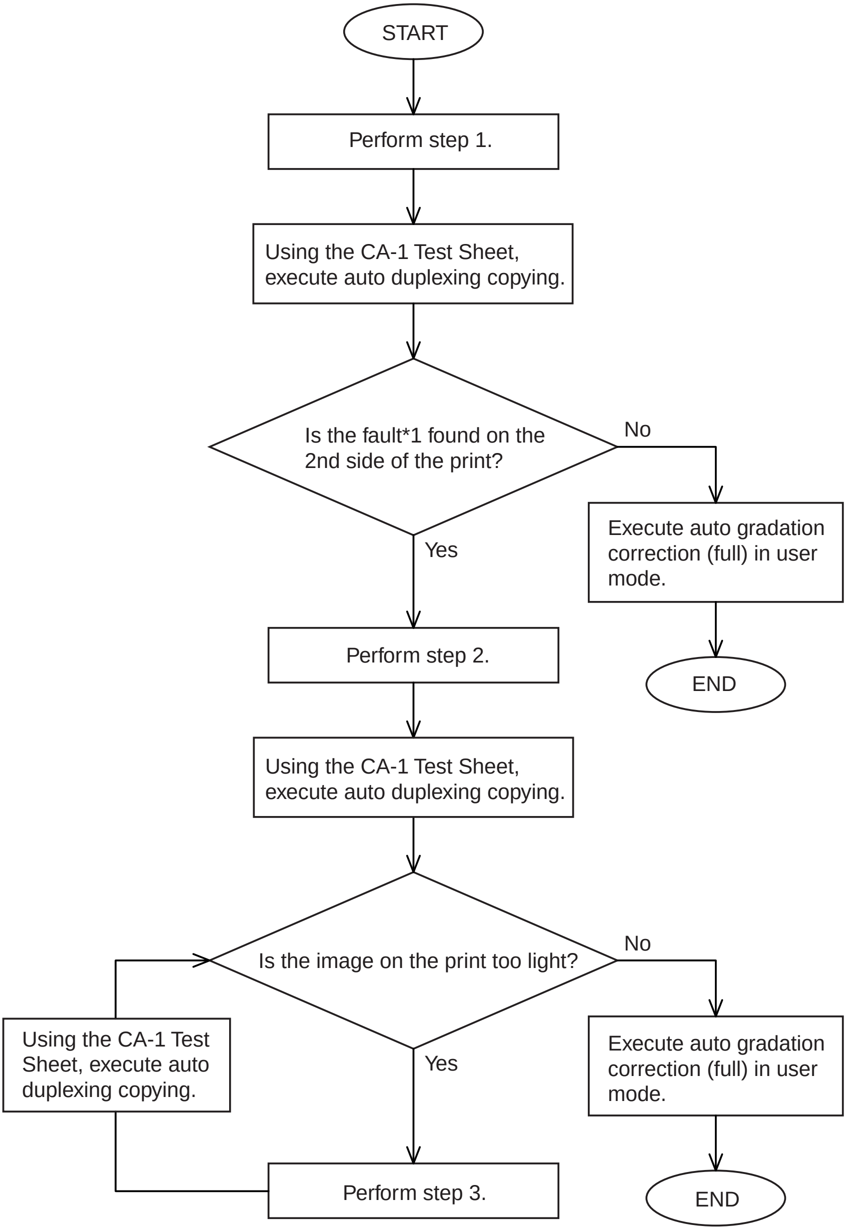
When a double-sided print is made in a low humidity environment, the secondary transfer voltage tends to increase while processing the 2nd side, at times causing missing color because of an increase in the degree of discharge.


M
M
M
C
C
C
Y
Y
20
15
10
5
M C Y R G B M C Y R G B M C
1 — 2 — 3 4 — 5 — 6 7 —
R
R
R
G
G
G
B
B

F-13-27

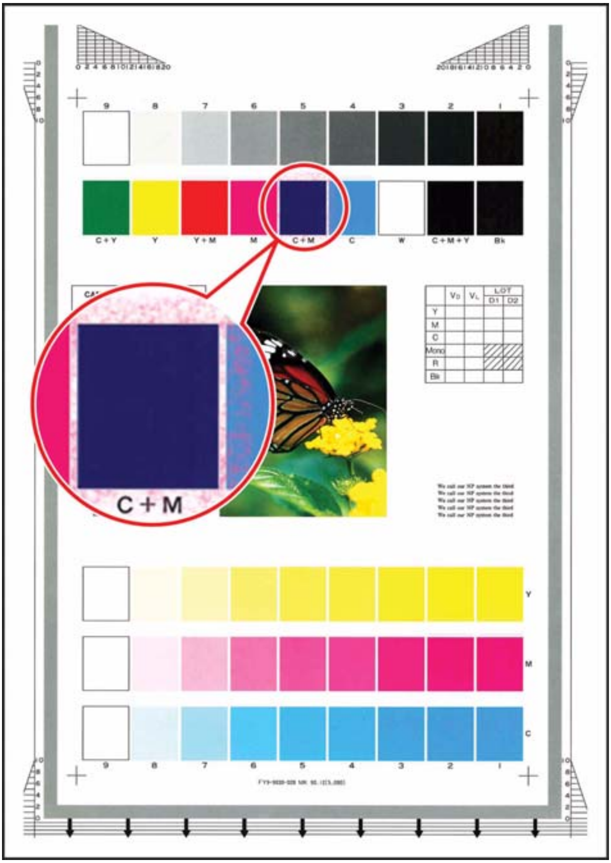
Field Remedy

If this symptom is noted, go through the following flow of work to correct it:


START
Perform step 1.
Using the CA-1 Test Sheet, execute auto duplexing copying.
Is the fault*1 found on the 2nd side of the print?
No
Execute auto gradation correction (full) in user mode.
END
Yes
Perform step 2.
Using the CA-1 Test Sheet, execute auto duplexing copying.
Is the image on the print too light?
No
Execute auto gradation correction (full) in user mode.
END
Yes
Perform step 3.
Using the CA-1 Test Sheet, execute auto duplexing copying.

F-13-28

*1: It shows on prints as seen on the following image fault sample:



F-13-29

<Step 1>

Decrease the secondary transfer voltage for paper type, environment, and color mode using the following 6 service mode items:

1. Environment (TR-ENV1)

Set the environment in the following service mode item: COPIER>ADJUST>HV-TR>TR-ENV1. (1: low humidity; 2: normal humidity; 3: high humidity).

2. Paper Type (TR-PPR1)

Set the paper type in the following service mode item: COPIER>ADJUST>HV-TR>TR-PPR1. (1: plain paper; 2: recycled paper; 3: colored paper; 4: punch paper; 5: heavy paper 1; 6: heavy paper 2; 7: heavy paper 3; 8: transparency; 9: tracing paper; 10: postcard; 11: 2-pane postcard; 12: 4-pane postcard; 13: label sheet)

3. Color Mode (TR-CLR1)

Use the color mode in the following service mode item: COPIER>ADJUST>HV-TR>TR-CLR1. (1: Bk; 2: 4C)

4. Single-Side/Double-Sided (TR-DUP1)

Select either double-sided or single-sided in the following service mode item: COPIER>ADJUST>HV-TR>TR-DUP1. (1: single-sided; 2: auto double-sided; 3: manual double-sided)

5. Secondary Transfer ATVC Target Current Offset (2TR-TGT1)

Set '0' and execute the following service mode item: COPIER>ADJUST>HV-TR>2TR-TGT1. (range of setting: -10 to +10; in 5 yA)

6. Secondary Transfer ATVC Paper Voltage Offset (2TR-SHR1)

Set '-3' and execute the following service mode item: COPIER>ADJUST>HV-TR>2TR-SHR1. (range of settings: -10 to +10; in 100 V)

⚠

Be sure to go through the foregoing 6 service mode items before executing the following items; for instance, to decrease the transfer voltage by 300 V for low humidity, plain paper, 4C, auto duplexing:

COPIER> ADJUST> HT-TR> TR-ENV1 :1
COPIER> ADJUST> HT-TR> TR-PPR1 :1
COPIER> ADJUST> HT-TR> TR-CLR1 :2
COPIER> ADJUST> HT-TR> TR-DUP1 :2
COPIER> ADJUST> HT-TR> 2TR-TGT1 :0
COPIER> ADJUST> HT-TR> 2TR-SHR1 :-3
<Step 2>

Adjust the color balance using the following 4 service mode items, thus decreasing the density of individual colors:

1. Y Color Balance Adjustment
Set '-3' and execute the following service mode item: COPIER>ADJUST>COLOR>ADJ-Y. (range of settings: -8 to +8)

2. M Color Balance Adjustment
Set '-3' and execute the following service mode item: COPIER>ADJUST>COLOR>ADJ-M. (range of settings: -8 to +8)

3. C Color Balance Adjustment
Set '-3' and execute the following service mode item: COPIER>ADJUST>COLOR>ADJ-C. (range of settings: -8 to +8)

4. K Color Balance Adjustment
Set '-3' and execute the following service mode item: COPIER>ADJUST>COLOR>ADJ-K. (range of settings: -8 to +8)

<Step 3>

If the copy image is too light, set the service mode items (color balance adjustment) used in step 2 to '-1' or '-2'.

13.3.2.5.4 White Spots at 51mm Intervals

Cause

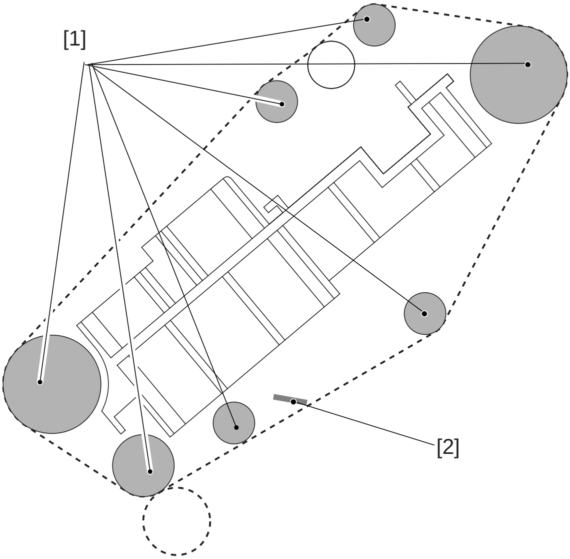
White spots can occur when wear starts on the primary transfer roller (i.e., an area of the roller is likely to become soft).

Field Remedy

1. Replace the primary transfer roller.
2. Clean the rollers inside the ITB unit and the scraper inside the intermediate transfer belt.

<Cleaning the Rollers Inside the ITB Unit and the Scraper Inside the Intermediate Transfer Belt>

1) Dry wipe the rollers [1] and the scraper [2] shown in the following figure with lint-free paper.

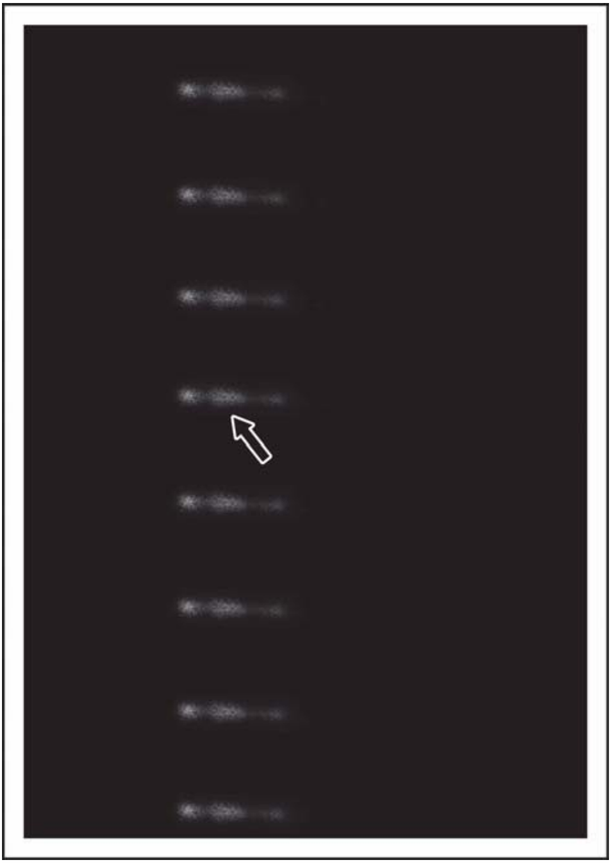


F-13-30

Description

The white spot in question tends to occur at intervals of about 51 mm.

Image Sample



F-13-31

13.3.2.5.5 Vertical Lines Caused by an ITB Cleaning Fault

Cause

When the ITB cleaning blade becomes worn, a part of it can become appreciably rigid and bend. Once this phenomenon occurs, the cleaning blade tends to fail to remove all residual toner from the belt, permitting some (additive) to remain and stick to the ITB, leading to white spots in images.

Field Remedy

Perform the following work:

- Execute "clean roller" in user mode. This mode item is designed to start black band sequence (Note) to increase the cleaning performance of the blade.

user mode>adjust/clean/clean roller

If executing the mode item fails to bring about good results, execute it once again.

Note:

In black band sequence, the machine will deposit black toner on the ITB in the form of a black belt and collect the toner using the cleaning blade.

Explanation

This symptom is noticeable in color prints of halftone images, but is absent in mono-color prints.

A service mode item is also offered as a remedy against this system.

This mode item has been designed considering users making color prints of halftone images immediately turning on the main power.

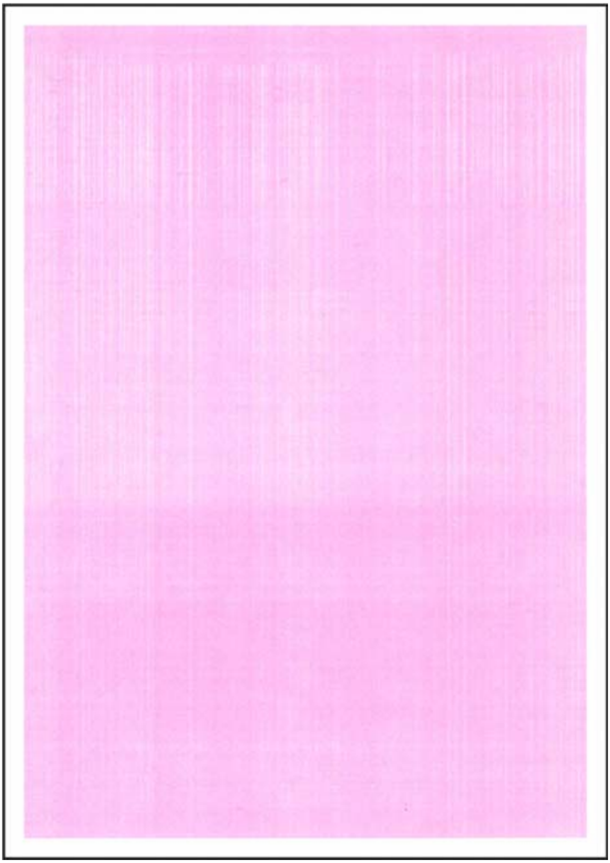
The machine may be set so that it executes black band sequence a specific number of times when the main power is turned on. To do so, use COPIER>OPTION>BODY>ITB-CLN. The settings are as follows:

0: do not execute (factory default)
1: execute once
2: execute twice
3: execute 3 times

Note:

It takes 60 sec for the machine to run this mode item. In other words, if the mode is set to "3", the machine's wait time will be longer by 180 sec. In this regard, it may be good idea to set it to "1", thereby reducing the wait time.

Image Sample



F-13-32

13.3.2.6 Smudged/Streaked

13.3.2.6.1 Vertical Lines

Cause

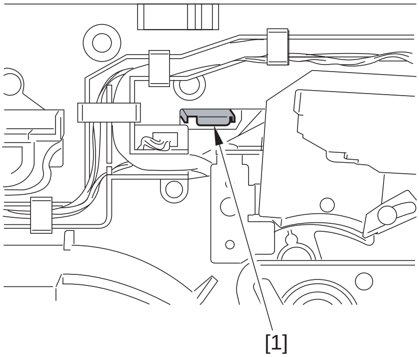
The presence of dirt on the deflecting mirror inside the laser scanner unit can cause lines in vertical direction.

Field Remedy

Clean the deflecting mirror as follows:

1) Open the hopper assembly.

2) Hold the mirror cleaning tool [1] as shown, and fit it in the slit [2]. (mirror cleaning tool: FL2-2474)



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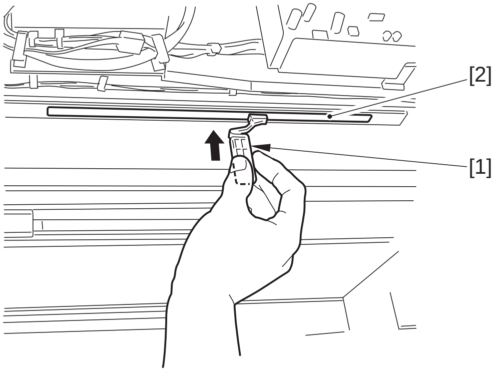
3) Slide out the fixing/feeding assembly.

4) Slide out the process unit.

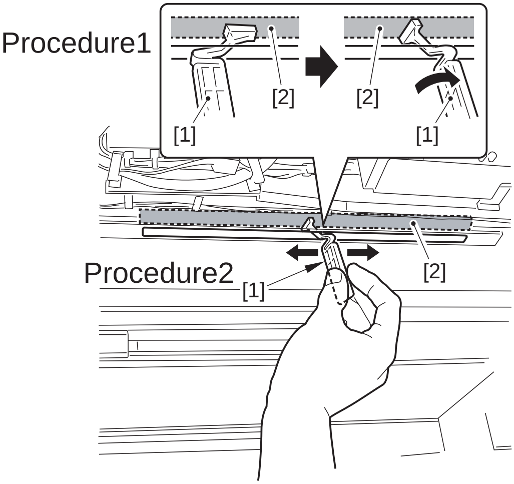
5) Pull on the grip [1] found on the edge of the dust-blocking plate to detach the glass plate from the machine.



F-13-34

6) Turn the mirror cleaning tool [1] by 90 deg as shown. (step 1)

7) Move the mirror cleaning tool [1] to the front and to the rear as shown to clean the laser mirror. (step 2)



F-13-35

Description

The vertical lines tend to grow thicker as the machine is used longer.

13.3.2.6.2 Soiling of the Left/Right Margin on Double-Sided Prints (1st side) 0005-4707

iR C6800 / iR C6800N

Cause

The presence of dirt on the sheet found at the lower rear of the fixing/feed assembly can soil the left/right margin of double-side prints (1st side).

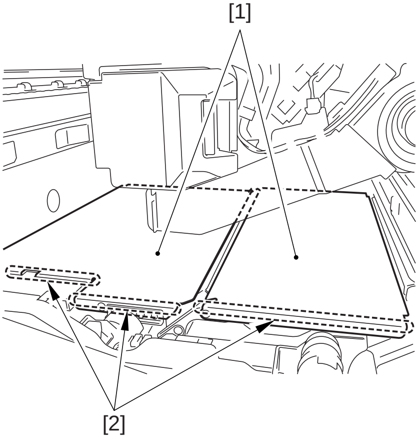
Field Remedy

Clean the sheet found at the lower rear of the fixing/feeding assembly. See the following figure [3].

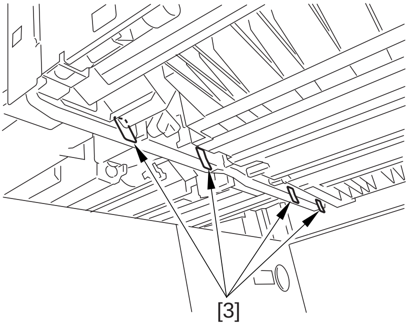
Note:

Check to see if any of the following is soiled with toner; if soiled, dry wipe it:

- entire surface of the deck top plate [1]
- bend area of the deck top plate fan [2]
- sheet at fixing/feeding assembly (4 locations) [3]



F-13-36



F-13-37

Description

This symptom does not occur if the paper is about 300 mm or less in width.

13.3.2.6.3 Stray Toner

<Cause>

When solid color double-sided prints are made in a low humidity environment, the inadequate secondary transfer current for the 2nd side can cause stray toner.

<Field Remedy>

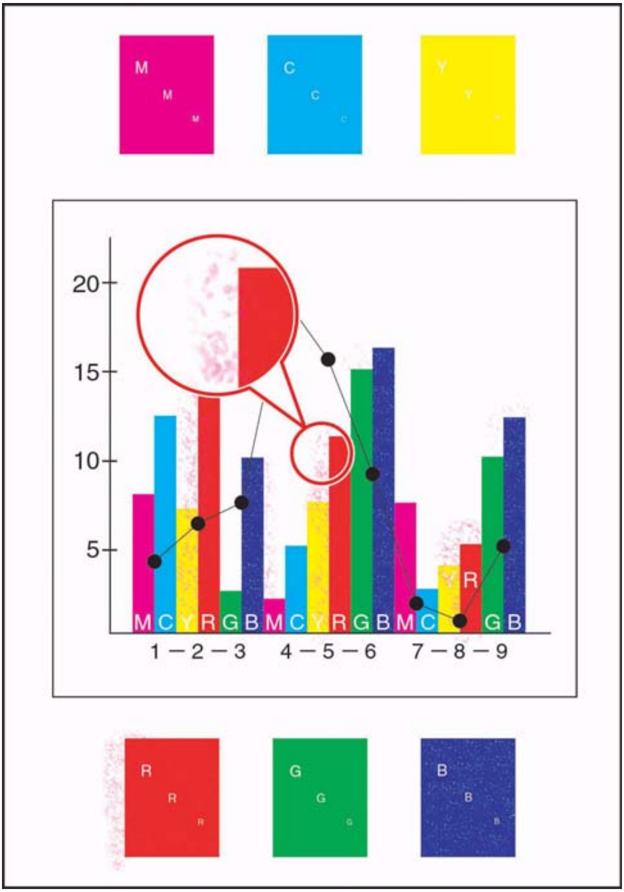
Limit the amount of color toners by executing the following service mode items:
Set -3- to the following in service mode: COPIER>ADJUST>COLOR>ADJ-Y.
Set -3- to the following in service mode: COPIER>ADJUST>COLOR>ADJ-M.
Set -3- to the following in service mode: COPIER>ADJUST>COLOR>ADJ-C.
Set -3- to the following in service mode: COPIER>ADJUST>COLOR>ADJ-K.

<Caution>

If the image is too faint, increase the setting by using the foregoing service mode items. After performing this remedy, be sure to execute full correction in user mode (under auto gradation correction) to ensure optimum density.

<Remarks>

This symptom can occur when printing on the 2nd side of dry paper while making a double-side print of solid color images in a low humidity environment.
Advise the user to avoid the use of paper that has been left alone for a long time whenever possible, recommending the use of paper fresh out of package.


M
M
M
C
C
C
Y
Y
Y
20
15
10
5
M C Y R G B M C Y R G B M C Y R G B
1 — 2 — 3
4 — 5 — 6
7 — 8 — 9
R
R
R
G
G
G
B
B
B

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13.3.2.6.4 Oil Lines in Vertical Direction

Cause

When paper of the same size is used continuously, the area of the fixing roller coming into contact with the edge of paper tends to wear out, developing a dent. The dent in turn tends to collect oil from the belt, resulting in oil lines when paper of a larger size is used.

This symptom is most conspicuous on th 1st large size sheet, growing lighter and disappearing after several sheets. The symptom, on the other hand, tends to occur more readily when the fixing roller starts to deteriorate after long use (100,000 sheets or more).

EX: if A4 is used normally, and A3 extra-length paper is used as an exception:

Field Remedy

Replace the fixing roller/pressure roller.

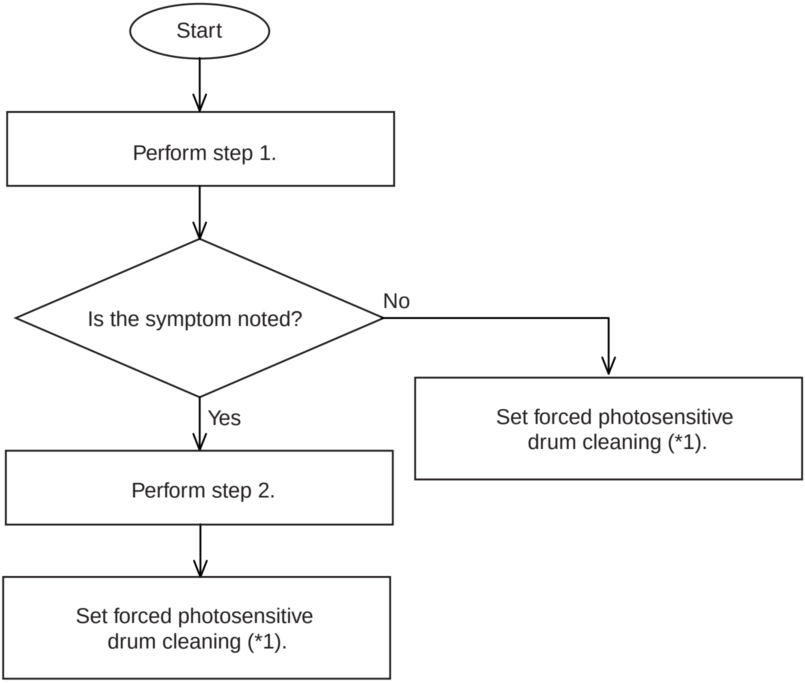
13.3.2.6.5 Soiling as Dots at Drum Intervals

Cause

When the transfer cleaning drive assembly is removed, the force of the pressure spring causes the ITB cleaning blade to butt against the intermediate transfer belt. The contact in turn will cause the coating of the blade to stick to the belt. The coating will then be pressed against the photosensitive drum under the force of the primary transfer roller. When the photosensitive drum cleaning blade starts to wear, it can fail to collect the coating, and the coating will likely appear on the prints in the form of dots.

Field Remedy

If this symptom is noted, go through the following flow of work to correct it:


Start
Perform step 1.
Is the symptom noted?
No
Yes
Set forced photosensitive drum cleaning (*1).
Perform step 2.
Set forced photosensitive drum cleaning (*1).

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*1: To set forced photosensitive drum cleaning (at power-on), perform the following:

1) Set "1" the following service mode item: COPIER>OPTIONAL>BODY>D-CLN-TM.

2) Set "1" to the following service mode item: COPIER>OTPN>BODY>PAIR-FAN.

The machine executes the following in the course of this cleaning mode item:

- Stops drum idle rotation and magnet roller, and executes black band sequence.
- Eecutes full-speed rotation of the primary charging suction fan in an H/H environment.

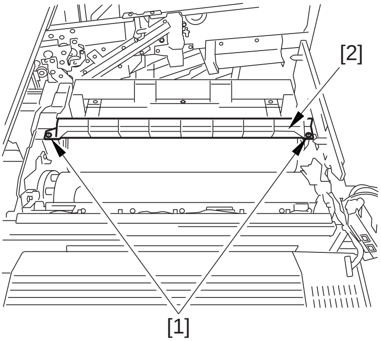
Step 1

Clean the photosensitive drum as follows:

1) Draw out the process unit.

2) Take out the primary charging assembly.

3) Remove the 2 screws, and detach the charging assembly rail.



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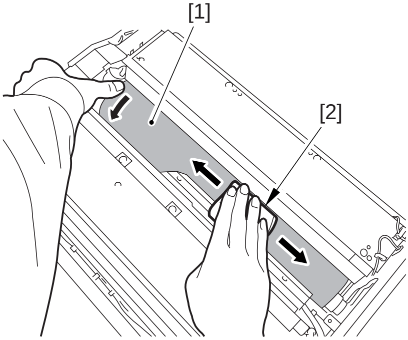
4) As shown in the figure, turn the photosensitive drum [1] counterclockwise while dry-wiping its surface with lint-free paper [2].



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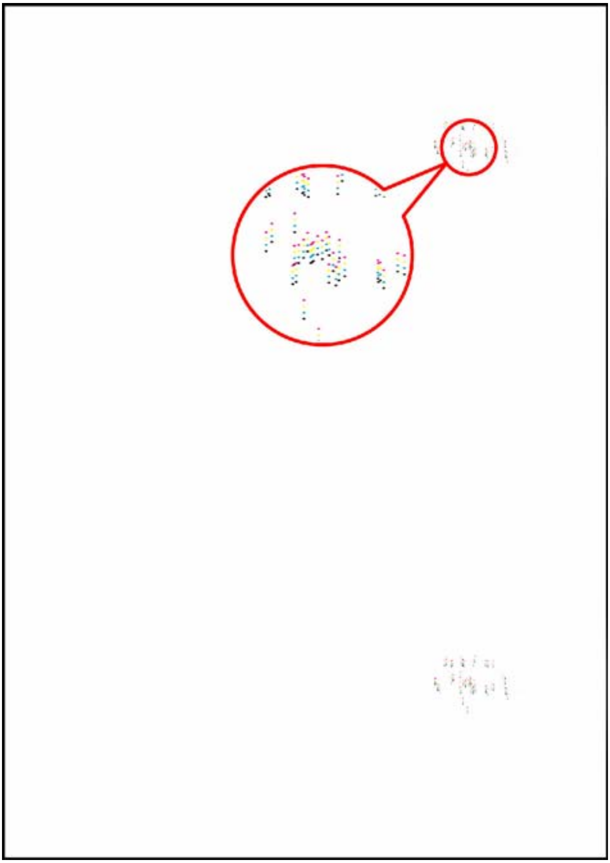
Step 2

Replace the ITB cleaning blade and the photosensitive drum cleaning blade.

Description

The coating on the photosensitive drum will appear white in response to light (e.g., form a pen light). Removing the coating from such an area will eliminate dots in the output.

Image Sample



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13.3.2.6.6 Horizontal Line Caused by Impact from the Developing Rotary

Cause

When a full color print is made, the vibration from the movement of the developing rotary affects the laser exposure mechanism, at times resulting in a horizontal line in the output.

Field Remedy

Perform the following to adjust the target contrast potential of individual colors:

1) Generate test prints (COPIER>TEST>PG>TYPE=1).

2) Decrease the target contrast of the color in which the line is conspicuous.

- change the setting to '-30' in service mode (COPIER>ADJUST>V-CONT>VCONT-Y).
- change the setting to '-30' in service mode (COPIER>ADJUST>V-CONT>VCONT-M).
- change the setting to '-30' in service mode (COPIER>ADJUST>V-CONT>VCONT-C).

3) Once again, generate test prints (COPIER>TEST>PG>TYPE=1); then, check the output against the output generated in step 1). If there is no improvement, go to step 4).

4) Decrease the target contrast potential of the color in question further in service mode:

- change the setting to '-50' in service mode (COPIER>ADJUST>V-CONT>VCONT-Y).
- change the setting to '-50' in service mode (COPIER>ADJUST>V-CONT>VCONT-M).
- change the setting to '-50' in service mode (COPIER>ADJUST>V-CONT>VCONT-C).

5) Once again, generate test prints (COPIER>TEST>PG>TYPE=1), and compare the output against the output generated in step 3), thereby making sure that improvement has been made.

Note:

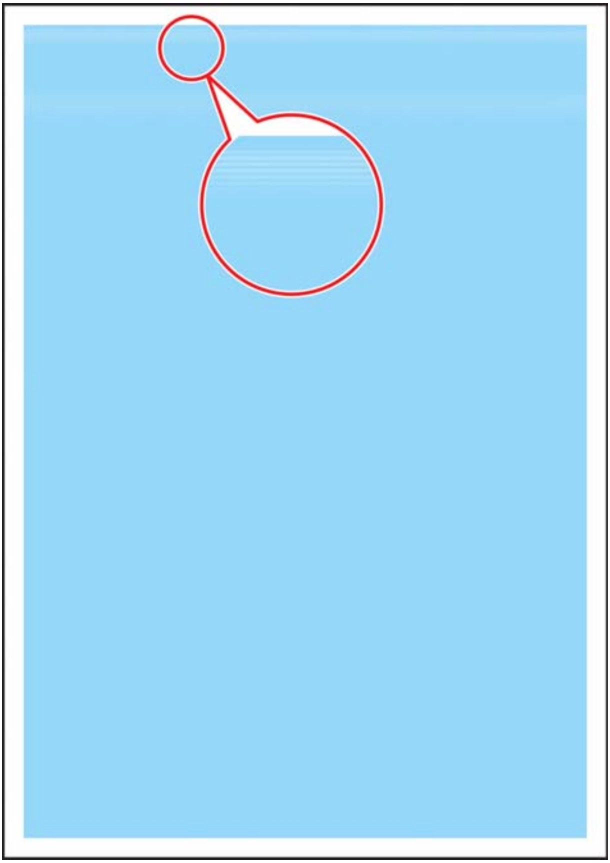
Make copies using the CA-1 Test Chart and an appropriate original of the user. If the image contrast has adversely been affected, increase the setting using the foregoing service mode item (range of settings: -31 and -49).

After you have performed the foregoing remedy, be sure to execute auto gradation correction (full; image characteristic correction control) in user mode.

Description

This symptom tends to be conspicuous in M or C when making full color prints (halftone). In the case of M, the symptom tends to occur about 25 to 30 mm from the leading edge of the image; in the case of C, on the other hand, it tends to occur around 50 to 60 mm from the image leading edge.

Image Sample



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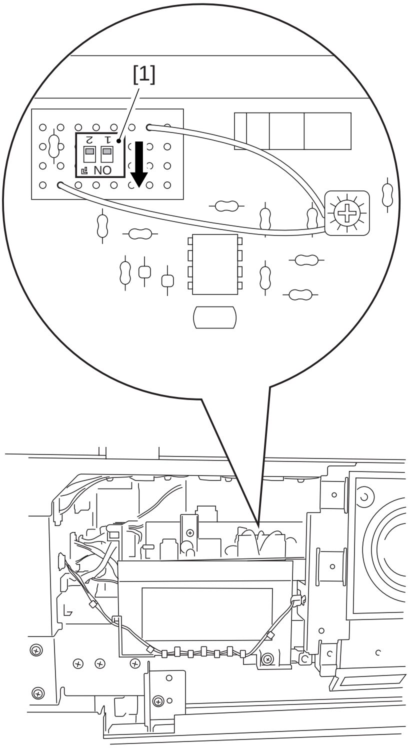
13.3.2.6.7 Soiling in the Form of a Ring

Cause

If, for some reason, fine particles (e.g., of oil) make their way inside a color developing assembly, electrical discharge is likely to occur between the metal particles on the surface of the developing cylinder and the photosensitive drum, causing soiling in the form of a ring.

Field Remedy

Shift SW1 SW2 (DIP switch) on the HV2 PCB to ON. (At time of shipment, these switches are kept to OFF.)



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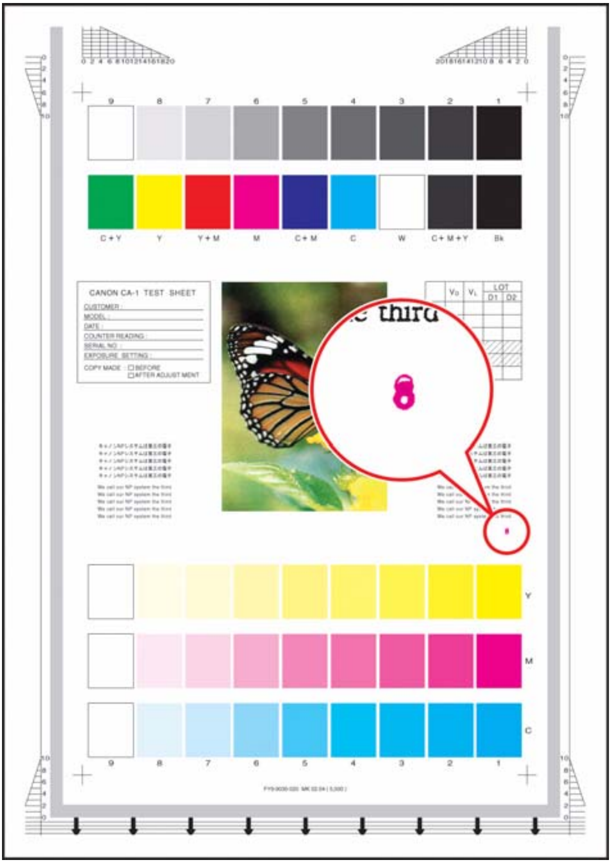
Description

If SW1 is OFF and SW2 is OFF, the AC component of the developing bias is 1,800 Vp-p (default).

If SW1 is ON and SW2 is ON, the AC component of the developing bias is 1,600 Vp-p.

A decrease in the AC component of the developing bias will limit the increase in potential occurring instantaneously between the metal particulars on the developing cylinder and the surface of the photosensitive drum, thus making electrical discharge less likely.

Image Sample


9 8 7 6 5 4 3 2 1
C+Y
Y
Y+M
M
C+M
C
W
C+M+Y
Bk
CANON CA-1 TEST SHEET
CUSTOMER :
MODEL :
DATE :
COUNTER READING :
SERIAL NO :
EXPOSURE SETTING :
COPY MADE : ☐BEFORE ☐AFTER ADJUST MENT
V0
VL
LOT
D1
D2
third
8
Y
M
C

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13.3.2.7 Ghost / Memory

13.3.2.7.1 Ghost Caused by a Bend on the ITB Cleaning Blade

Cause

The ITB cleaning blade can bend when used in a high humidity environment, causing a ghost image.

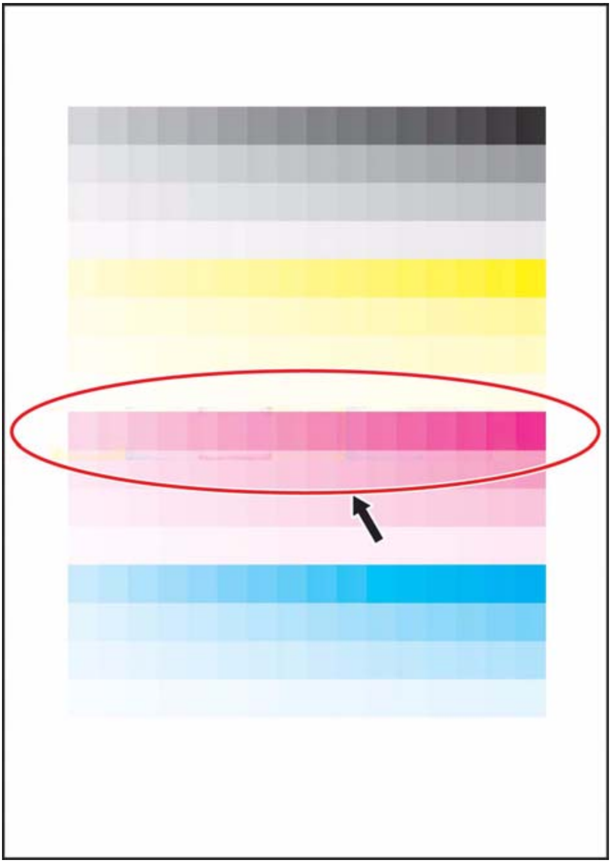
Field Remedy

Replace the ITB cleaning blade.

Description

This symptom tends to be conspicuous when an image with a high color ratio is copied.

Image Sample



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13.3.2.8 Faulty Color Reproduction

13.3.2.8.1 Faulty Color Reproduction Caused by an Error in Primary Transfer ATVC

Cause

If the process unit is left alone for a long time in a high humidity environment, the primary transfer ATVC control mechanism that goes on when the main power is turned on can cause electrical discharge between the primary transfer roller and the primary transfer static eliminator. The discharge can cause the resistance of the primary transfer roller to fluctuate. Malfunction of the primary transfer ATVC control mechanism can lead to an error associated with E020 or can adversely affect color reproduction.

Field Remedy

Use the following service mode item to execute primary transfer ATVC controller mechanism after idle rotation of the primary transfer roller. Execute this service mode item immediately after the control panel screen comes on (i.e., when the main power is turned on).

COPIER>FUNCTION>MISC-P>ITR-ROT

Description

The symptom is either an error associated with E020 or faulty color reproduction. Details are as follows:

- E020 Error

E020-xx90
E020-xx91
E020-xxD2
E020-xxDC

⚠

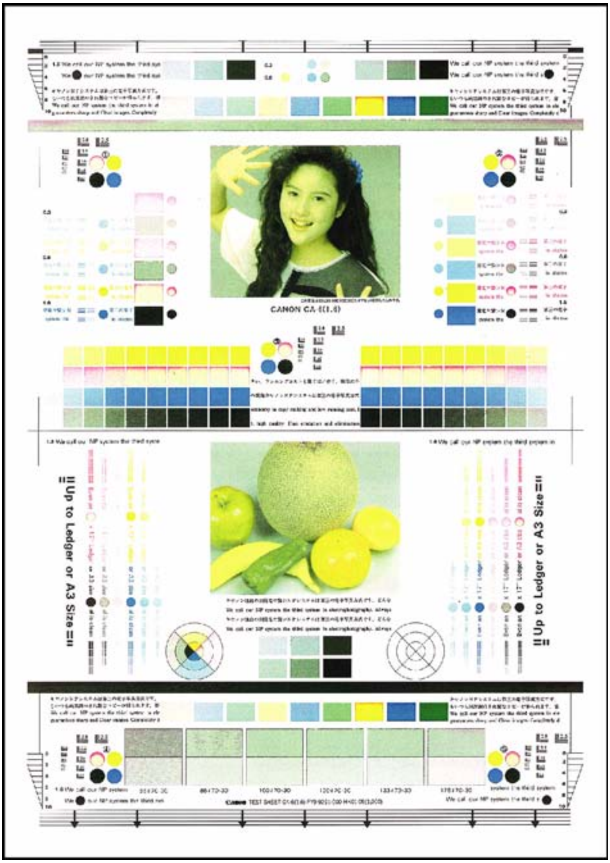
xx represents the color developing assembly suffering the error in question.
00= no specific color
01= Y
02= M
03= C

- Color Reproduction Fault

For instance, the faulty reproduction shows up as any of the following 3 types of image faults:

Image Sample

- image of a specific color is too light


CANON CA-1(1.0)
!! Up to Ledger or A3 Size !!
!! Up to Ledger or A3 Size !!

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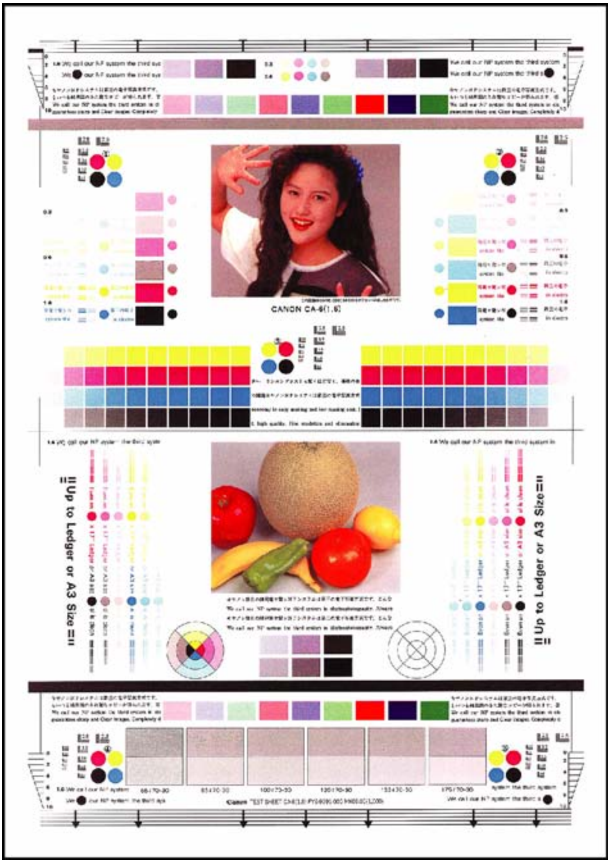
- image of a specific color is too dark



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- image is too light overall

F-13-49

13.3.3 Faulty Feeding

13.3.3.1 Wrap

13.3.3.1.1 Wrapping Around the Pressure Roller / Oil Traces / Separation Claw Traces / Wrinkle Traces

Description

- wrapping around the pressure roller occurs when fixing on the 2nd side of a double-sided print is under way
- difference in color caused by oil along the leading edge of the 1st side of a double-sided print (wavy, unevenness in gloss) [1]
- traces of separation claws along the leading edge of the 1st side of a double-sided print (lines opposite the separation claws) [2]
- traces of wrinkles of the pressure roller on the 1st side of a double-sided print [3]

However, of the foregoing, the symptom may not occur or may not be noticeable because of the degree of the cause.

The symptom tends to occur more readily for the following:
- paper of 80 g or less is used on a non-Japanese machine
- the fixing roller or the pressure roller has deteriorated (tending to occur more readily after 100,000 prints)
- a solid image (mono- or 2-color) is made (with the symptom being absent in the case of a mono solid image)
- double-sided prints are made

Cause

As the pressure roller is used more and more, the rubber layer starts to soften, gradually increasing the nip width and, as a result, causing the symptom to occur more readily.

Field Remedy

Change the setting of the following from '0' (default) to '1' or '2' in service mode: COPIER>OPTION>BODY>FXLW-TMP.

Memo:

1. The effects are greater when '2' is set; however, a drop in latitude in fixing will be a trade-off when heavy paper is used.

2: Be sure to return the setting to its initial value after replacing the fixing roller or the pressure roller. If the user seldom uses heavy paper and is likely to complain each time the roller starts to wear out, the setting need not be changed back to its initial value.

3. if the fixing roller or the pressure roller has been used for more than 150,000 prints, replacement of the roller is recommended.

Memo:

The pressure roller temperature control target is changed as follows to suit the setting selected in service mode:

1: 160 deg C

2: 150 deg C

Note 1:

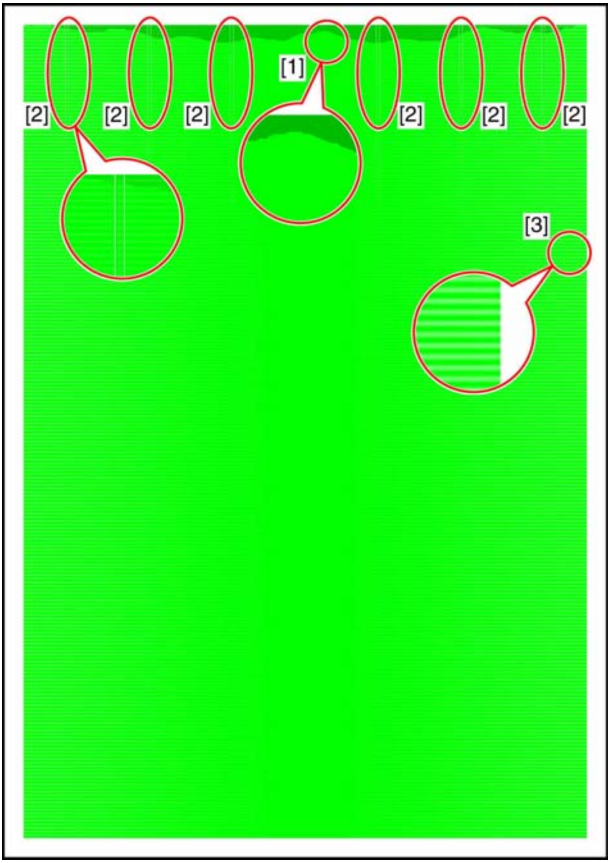
The effects will be larger if it is set to '2'; however, a drop in latitude of fixing will be a trade-off when heavy paper is used.

Not 2:

Be sure to return the setting back to its initial value when you have replaced the fixing roller or the pressure roller. (If the user seldom uses heavy paper and is likely to complain each time the roller starts to wear out, the setting need not be changed back to its initial value.

Note 3:

If the fixing roller or the pressure roller has been used for more than 150,00 prints, replacement of the roller is recommended.



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13.3.4 Malfunction

13.3.4.1 Malfunction/Faulty Detection

13.3.4.1.1 Fixing Web Displacement / 0A15/020D Jam Code

Cause

If you open the front cover in any of the following conditions and turn the fixing jam removal knob, the web will likely become slack and displaced:

- during last rotation after output ("Printer is warming up..." is indicated.)
- during fixing idle rotation at time of warm-up
- during printing

When the slack starts to increase and the belt becomes trapped by the fixing roller, the following jam can occur:

- 0A15 (fixing inlet sensor power-on jam)
- 0200 (reversal sensor stationary jam)

Field Remedy

Take up the fixing web so that it is not slack.

Observe the following, and advise the user on points of importance:

Note:

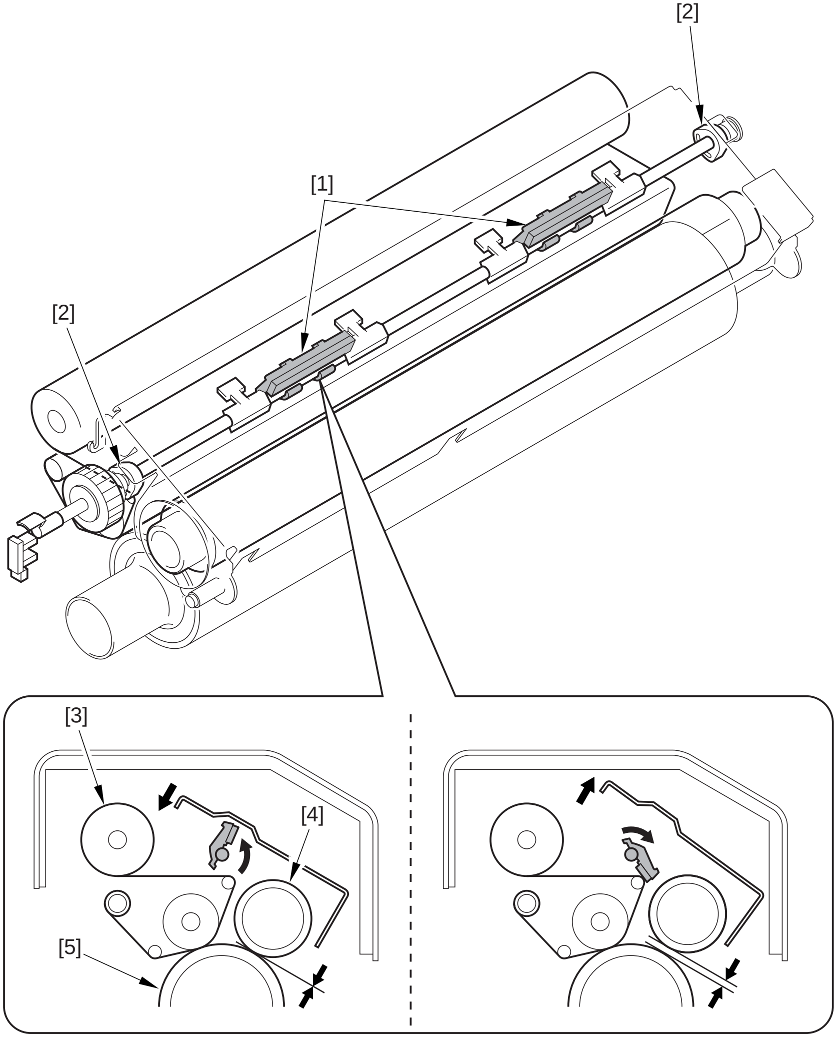
- Web retaining pad is used to keep the web in place so that the web will not become slack when the fixing roller is rotated in reverse for jam removal.

The web retaining pad is mounted to the same shaft as the cam used to move the outside heating roller to and from the fixing roller: while the outside heating roller is in contact with the fixing roller, the pad is away from the web; on the other hand, when the outside heating roller is away from the fixing roller, the pad is used to keep the web in place.

⚠

The machine indicates the message "Printer is warming up..." on its LCD while it executes last rotation after printing. While the message is on the LCD, the fixing roller is under temperature control, and the outside heating roller is in contact with the fixing roller, i.e., the web retaining pad is away from the web. If you open the front cover and turn the fixing assembly release knob, the web will become slack and possibly displaced. Do not open the front door while the message is on the LCD. If you must, do not turn the fixing assembly releasing knob.

The web retainer is also away from the web when you force the front cover to open while printing or fixing idle rotation is under way during warm-up: be sure to keep this in mind during service work.



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1 Web retaining pad

2 Cam

3 Cleaning web

4 Outside heating roller

5 Fixing roller

13.3.4.2 Noise

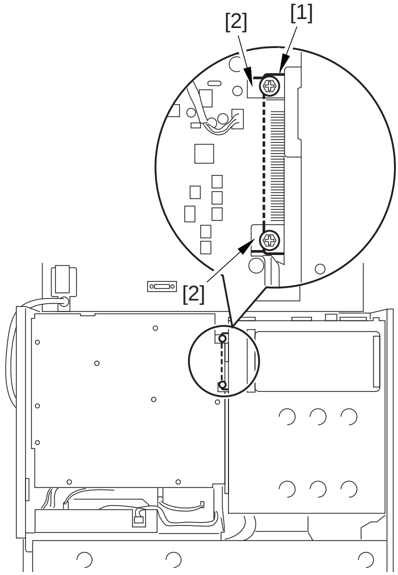
13.3.4.2.1 Abnormal Noise from the Rotating Rotary

Cause

During assembly work after servicing the machine, the controller box plate [1] is likely to have been screwed toward the rear of the plate of the DC controller box [2], thus imposing pressure on the rotary motor.

Field Remedy

Correct the location at which the plates are screwed in place.
The figure shows the correct location.
top: controller box plate [1]
bottom: plate of the DC controller box [2]



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13.3.4.3 User Warning Message

13.3.4.3.1 Frequent DF Reading Glass Cleaning Message

The following is a list of causes and field remedies associated with the symptom:

Cause

A. dust or dirt on the reading glass; the reader unit detects dirt to issue the cleaning message, and it does not detect stray dust

B. dirt on the read roller, or dirt on the white plastic film

C. scratch on the reading glass: or dirt resisting cleaning

D. scratches in radial direction of the red roller, or dirt remaining after cleaning

E. dirt on the CCD

<Checking for Dirt on the CCD>

The presence of dirt on CCD cells will cause a line in the image in both stream reading and copyboard modes alike. If the particles are small, the reader unit will make up for their presence, removing lines from the output image.

Set '0' to the following service mode item, and check the output image for a line; thereafter, be sure to change the setting back to its initial value:

COPIER>OPTION>BODY>DFDST-L1 (level 1)

Field Remedy

A. Clean the reading glass using cleaning tissue or cleaning oil.

B. Dry wipe the read roller/white plastic film; or, use alcohol to clean them.

Memo:

If the machine is installed in a dusty place, cleaning it on a periodical basis is desirable.

C: Replace the reading glass.

D. Replace the read roller.

Memo:

If you have replaced the rear roller, be sure to perform the following:

- white level adjustment
- DF height adjustment

E. Replace the CCD unit.

13.3.4.3.2 Frequent DF reading Glass Cleaning Message (user requesting disabling of the message)

This message is not issued in response to the presence of dirt inside the machine (i.e., it is not used to alert the user to an error condition). Nevertheless, if the user requests disabling the message, go through the following:

Field Remedy

A. Change the level used to detect dust.

Decrease the level of detection (level 1) in service mode: COPIER>OPTION>BODY>DFDST-L in increments of '5'.

Memo:

A decrease in the level will decrease the level of correction executed for the presence of dust, possibly leaving a light black line in the output image. Setting it to '0' will disable dust detection all together.

B. Change the setting of the cleaning message in service mode:

COPIER>OPTIONAL>BODY>DFDST-L1 (level 1).

Memo:

The cleaning message may be disabled in service mode, but the machine will still check for dust; varying the read position according to the result of detection.

13.3.5 Jam (Main Unit)

13.3.5.1 0103/0104 Jam Code Neuissiedler large-size/RA3 pickup fault

Cause

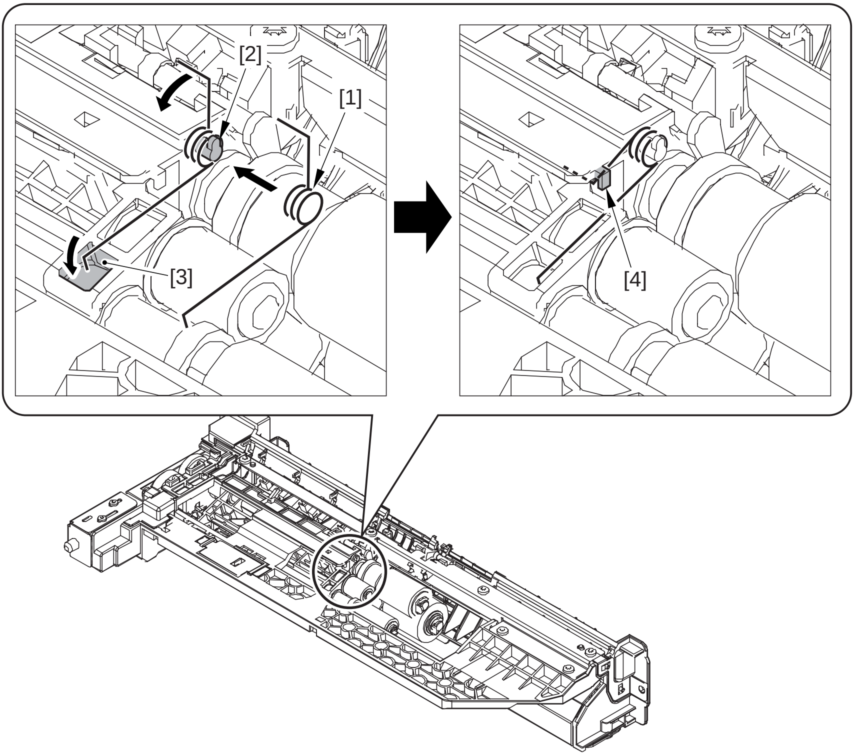
In a high temperature/humidity environment, Neuissiedler paper (13x19)/SRA3 paper tends to absorb moisture, thus causing pickup faults.

Field Remedy

Fit a pressure spring (service part; FC5-2525) to increase the pickup roller pressure.

Work Procedure

Fit the pressure spring [1] through the protrusion [2]; then, fit the spring in the groove [3] and hook it on the protrusion [4].



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13.3.6 Error Code

13.3.6.1 E020/E021/E061/E070/E078/E820 Error Code / Poor contact of connectors around process unit

For details of error codes, see the following:

E020-0080/E020-0180/E020-0280/E020-0380/E020-0090/E020-0190/E020-0290/E020-

0091/E020-0191/E020-0291/E020-0092/E020-0192/E020-0292/E020-0392/E020-00A0/E020-01A0/E020-02A0/E020-03A0/E020-00A1/E020-01A1/E020-02A1/E020-03A1/E020-00A2/E020-01A2/E020-02A2/E020-03A2/E020-00A3/E020-01A3/E020-02A3/E020-03A3/E021-0001/E021-0002/E061-0005/E061-0007/E070-0000/E070-0001/E070-0002/E070-0003/E078-0001/E820-0020

Cause

When drawing out the Pkit as part of servicing work, you need to disconnect and then connect the connectors. When repeated, their internal pins can start to suffer from poor connection, resulting in wrong operation/detection.

Description

A break in the harness can occur when the harness is disconnected/connected about 30 times.

The following is a list of harnesses that are subject to a break with descriptions of symptoms expected when a break occurs.

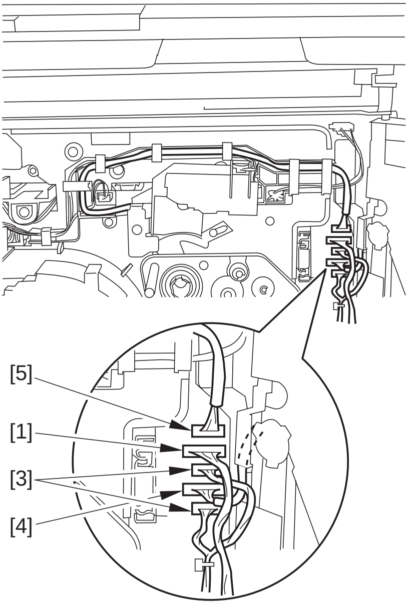
T-13-9

Name (part No.)		
Pin No.	Connection load (notation)	Expected error condition (symptom in response to error)
[1]ITB cleaner harness (FM2-0946) connector: J214L		
1/2/3/4	ITB cleaner shift motor (M21)	E078-0001 The motor stops.
5/6/7	ITB cleaning HP sensor (PS23)	E078-0001 The sensor fails to operate
8/9/10	process unit cooling fan (FM7)	E820-0002 The fan stops. The machine fails to detect rotation.
11/12	post-charging assembly cleaning motor (M27)	image fault (vertical line) The motor stops.
[2]PKIT harness (FM2-0947) connector: J201LA/J201B		
1/2	primary charging wire cleaning motor (M26)	image fault (vertical line) The motor stops.

3/4/5	color toner cartridge sensor (PS26)	message calling for the bottle. The absence of a bottle is wrongly detected in the presence of a bottle.
		The presence of a bottle is wrongly detected in the absence of a bottle.
6/7	pre-exposure LED (LED1)	image fault (solid black) E061-0005 The LED fails to go on.
8/9/10/11	color toner level sensor (PS25)	message calling for replacement of toner The absence of toner is wrongly detected in the presence of toner.
		image fault (low density) E020-**92 The presence of toner is wrongly detected in the absence of toner.
12/13/14	black toner level sensor (TS1)	2-min supply error E020-00FF black developing assembly excess toner supply The absence of toner is wrongly detected in the presence of toner.
		black developing assembly without toner -> image fault (low density) The presence of toner is wrongly detected in the absence of toner.
15/16	NC	
1/2	developing rotary locking solenoid (SL10)	E021-0002 The solenoid fails to operate
3/4/5	developing rotary solenoid sensor (PS8)	E021-0002 The sensor fails to operate.
6/7/8	developing rotary HP sensor (PS19)	E021-0001 The sensor fails to operate.

9-14	ATR sensor (PS4)	E020-**A0 E020-**A1 E020-**A2 E020-**A3 An error sensor value is detected
15/16	ATR sensor shutter solenoid (SL12)	E020-**A0 E020-**A1 E020-**A2 E020-**A3 A sensor error value is detected.
[3]ITB harness (FM2-0949)	connector: J261L/J267L	
1/2	patch image read sensor shutter solenoid (SL11)	E020-**81 E020-**90 E020-**91 A sensor error value is detected
3-8	patch image read sensor (PS2)	E020-**81 E020-**90 E020-**91 A sensor error value is detected
1/2/3	ITB HP sensor B (PS30)	E070-00** The sensor fails to operate.
4/5/6	ITB sensor A (PS1)	E070-00** The sensor fails to operate.
[4]Hopper harness (FM2-0950)	connector: J301L	
1/2	hopper stirring motor (M23)	black developing assembly without toner -> image fault (low density) The motor stops.

3/4/5	hopper inside toner level sensor (TS2)	2-min supply error (reset by opening/ closing the door) hopper excess toner supply The absence of toner is wrongly detected in the presence of toner.
		hopper without toner -> black developing assembly inside without toner The job stops. The presence of toner is wrongly detected in the absence of toner.
6/7	black toner supply motor (M25)	hopper without toner -> black developing assembly inside without toner The job stops. The hopper is without toner.
8/9/10	hopper open/closed sensor (PS28)	message calling for replacement of the bottle, not permitting recovery. remains closed.
		The black cartridge motor stops. remains closed
[5]Poteantial sensor harness (FL2-0986) connector: J407L		
1-6	potential sensor	E061-0007 An error potential level is detected.



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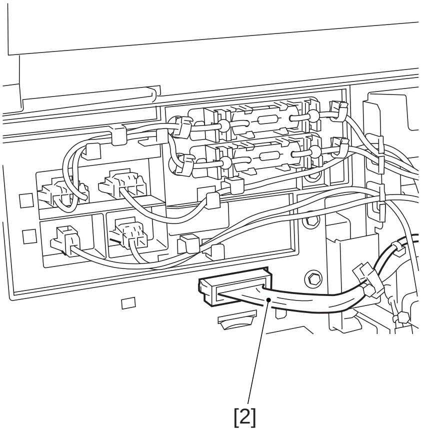

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Field Remedy

Replace the connector with the harness intact.

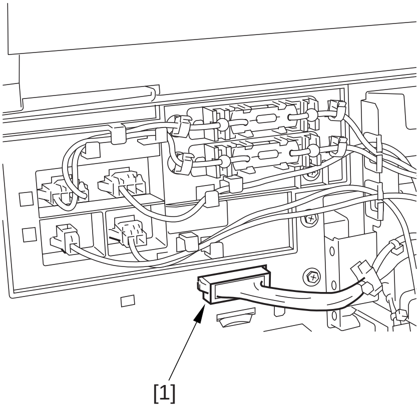
13.3.6.2 E020-03A0/E020-01A2 Error Code

Description

This symptom tends to occur when the connection has been disconnected and then connected a number of times (30 times or more).

Cause

The pins inside the connector tend to wear out when the connector [1] is disconnected and then connected a number of times (left of the process unit).



F-13-56

Field Remedy

Replace the connector together with its harness.

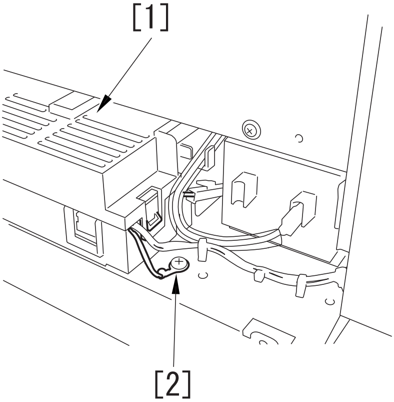
13.3.6.3 E061-0001 Error Code

Cause

The grounding wire [2] of HV1 [1] has poor contact.

Field Remedy

Connect the grounding wire correctly.



F-13-57

13.3.6.4 E070-0102 Error Code

Description

This symptom can occur when paper is placed in the manual feed tray in a low humidity environment and, as a result, the machine is subjected to static noise.

Cause

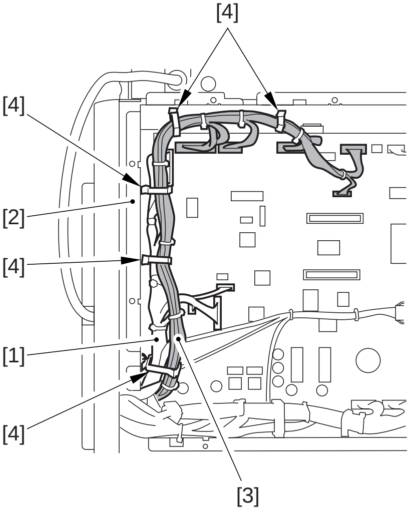
If the harness [1] connected to the DC controller PCB is away from the side plate [2] of the DC controller box, wrong detection (E070-0102) of the ITB home position tends to occur easily because of noise.

Field Remedy

When mounting the DC controller PCB or the DC controller box, be sure to connect the harness to the DC controller PCB as follows:

1) Connect the connector of the harness [1] first, then the other harness [3].

2) Fix the harnesses [1] [3] in place using the wire saddle [4] so that the harness [1] is on the left side of the other harness [3].



F-13-58

13.3.6.5 E070-0101/E070-0102/E070-0201/E070-0202/E070-0302 Error Code

Cause

If the grounding spring found inside the intermediate transfer assembly becomes deformed, the resulting static noise can cause the ITB home position sensor to malfunction.

The grounding spring may have become deformed when a part inside the intermediate transfer assembly was replaced.

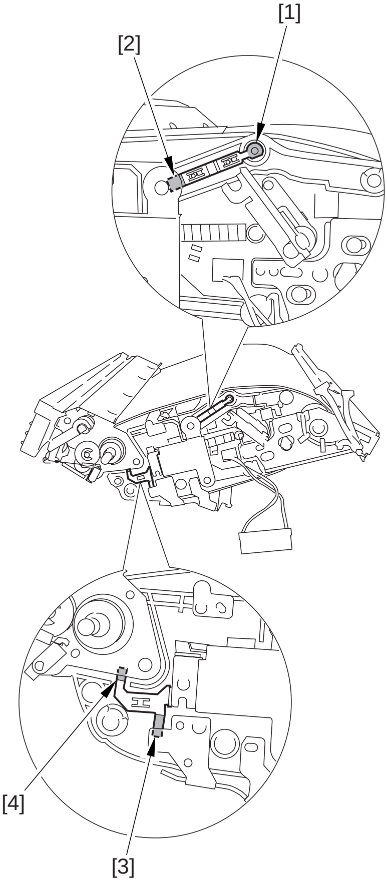
Field Remedy

Check the following contacts of the grounding spring. If any of these contacts is deformed and, thus, the electrical conductivity is poor, correct the spring:

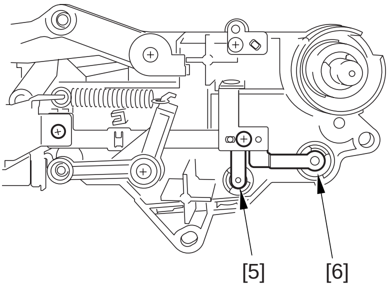
1 contact with the end of the primary transfer upstream roller
2 contact with the edge of the plate
3 contact with a plate around the secondary transfer assembly
4 contact with a plate around the secondary transfer assembly
5 contact with the secondary upstream roller

6 contact with the secondary transfer inside roller

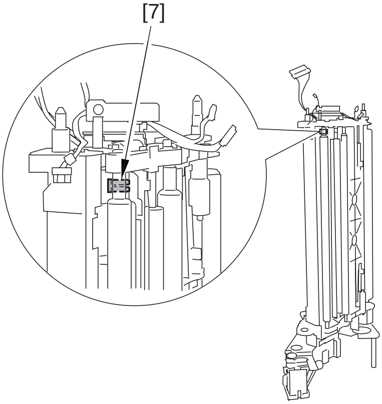
7 contact with the primary transfer downstream roller



F-13-59



F-13-60



F-13-61

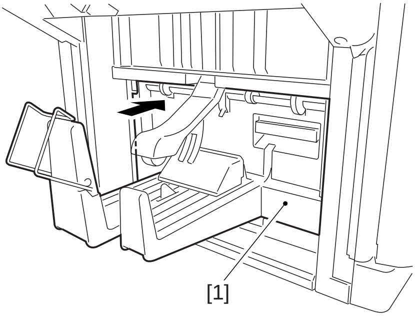
13.3.6.6 E542-8001 Error Code

Cause

If the saddle delivery tray door of the Saddle Finisher-R2 is not closed, the No. 2 tray will interfere with the door when it moves up/down, causing an error; particularly, the door fails to close at its rear.

Field Remedy

Close the saddle delivery tray door [1] (particularly, its rear) firmly. As necessary, advise the user on the importance of closing the door firmly.



F-13-62

13.4 Outline of Electrical Components

13.4.1 Clutch/Solenoid

13.4.1.1 Clutches and Solenoids

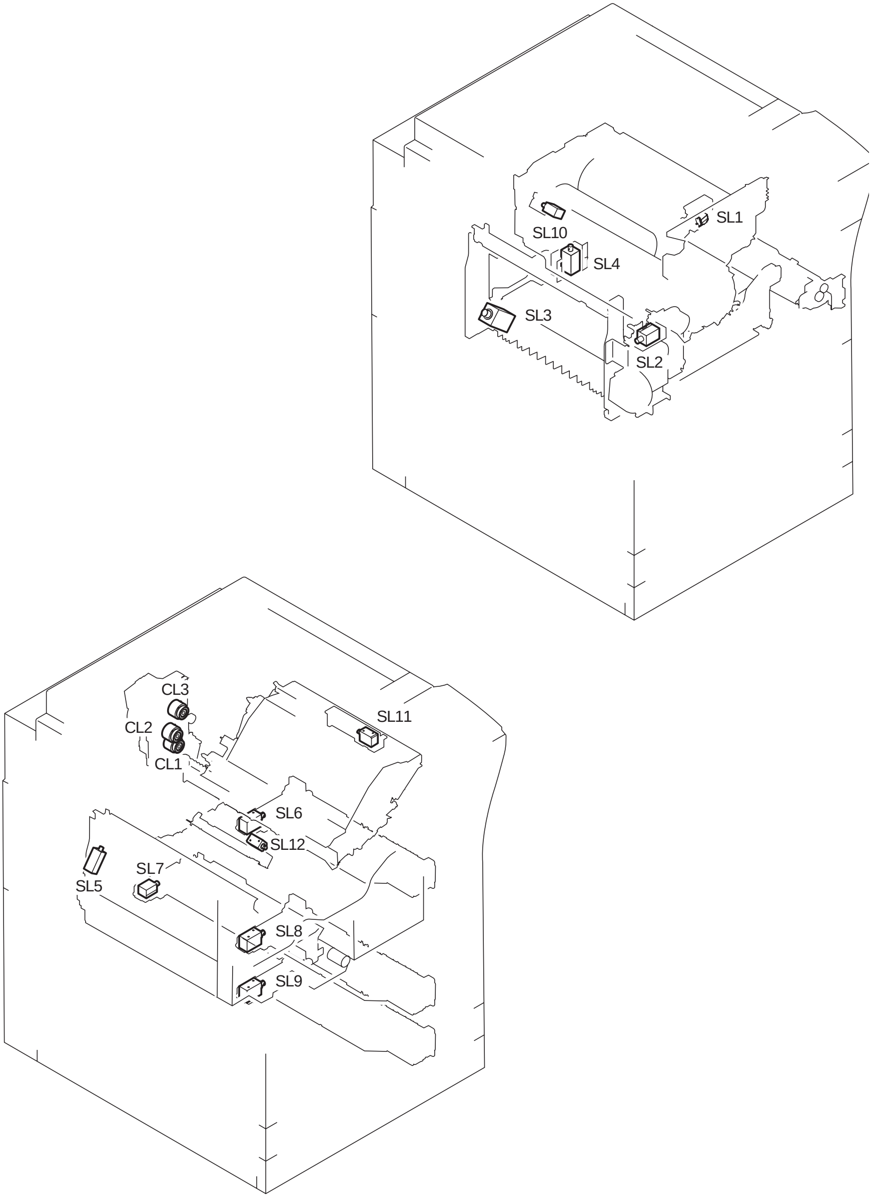
<Reader Unit>
The reader unit does not use clutches or solenoids.

<Printer Unit>

T-13-10

Notation	**Name**			**Connector No**	
	Parts No.	**I/O**	**PART-CHK**	**Fixing/ feeding driver PCB**	**DC controller PCB**
CL1	Color developing assembly clutch				
	FK2-0033		CL>1		J1109
CL2	Color toner supply clutch				
	FK2-0033		CL>2		J1109
CL3	Black developing assembly clutch				
	FK2-0033		CL>3		J1109
SL1	Manual feed pickup solenoid				
	FK2-0115		SL>1		J1107
SL2	Fixing web solenoid				
	FK2-0037		SL>2		J1118
SL3	Reversal shift solenoid				
	FM2-0584		SL>3	J1307/1303	J1119
SL4	Left deck confluence solenoid				
	FK2-0035		SL>4	J1307/1303	J1119

Notation	Name			Connector No	
	Parts No.	I/O	PART-CHK	Fixing/ feeding driver PCB	DC controller PCB
SL5	Delivery solenoid				
	FM2-0488		SL>5	J1308/1303	J1119
SL6	Deck (right) pickup solenoid				
	FK2-0116		SL>6		J1113
SL7	Deck (left) pickup solenoid				
	FK2-0116		SL>7		J1113
SL8	Cassette 3 pickup solenoid				
	FK2-0116		SL>8		J1114
SL9	Cassette 4 pickup solenoid				
	FK2-0116		SL>9		J1114
SL10	Developing rotary locking solenoid				
	FK2-0117		SL>10		J1106
SL11	Patch image read sensor shutter solenoid				
	FK2-0100		SL>11		J1121
SL12	ATR sensor shutter solenoid				
	FK2-0100		SL>12		J1106


SL1
SL10
SL4
SL3
SL2
CL3
CL2
CL1
SL11
SL6
SL12
SL7
SL5
SL8
SL9

F-13-63

13.4.2 Motor

13.4.2.1 Motors

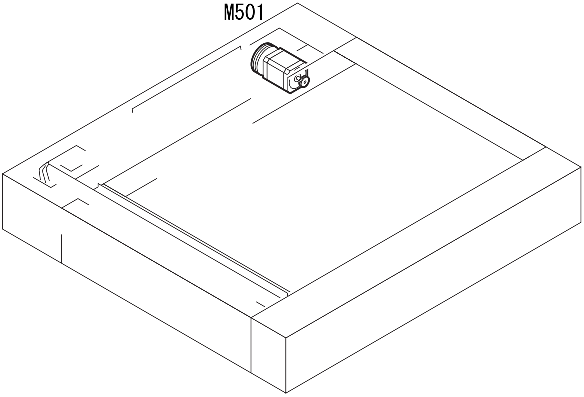
<Reader Unit>

T-13-11

Notation	Name		Description	
	Parts No.	I/O	PART-CHK	E code
M501	Scanner motor		drives the No. 1/No. 2 mirror base	
	FK2-0237			E202

T-13-12

Notation	Connector No.	
	I/F PCB	Reader controller PCB
M501	J306/307	J203



F-13-64

<Printer Unit>

T-13-13

<table>
<tr><th rowspan="2">Notation</th><th colspan="2">Name</th><th colspan="3">Description</th></tr>
<tr><th>Parts No.</th><th colspan="2">I/O</th><th>PART-CHK</th><th>E code</th></tr>
<tr><td rowspan="2">M1</td><td colspan="2">Polygon motor</td><td colspan="3">drives the laser scanner</td></tr>
<tr><td>FM2-0394 (laser scanner assembly)</td><td colspan="2"></td><td>MTR>1</td><td>E110</td></tr>
<tr><td rowspan="2">M2</td><td colspan="2">Drum/ITB motor</td><td colspan="3">drives the photosensitive drum, photosensitive drum cleaner, intermediate transfer unit</td></tr>
<tr><td>FK2-0019</td><td colspan="2"></td><td>MTR>2</td><td>E012</td></tr>
<tr><td rowspan="2">M3</td><td colspan="2">Developing motor</td><td colspan="3">supplies color toner; drives the black/color developing assembly</td></tr>
<tr><td>FK2-0021</td><td colspan="2"></td><td>MTR>3</td><td>E023</td></tr>
<tr><td rowspan="2">M4</td><td colspan="2">Fixing motor</td><td colspan="3">drives the fixing assembly</td></tr>
<tr><td>FK2-0023</td><td colspan="2"></td><td>MTR>4</td><td>E014</td></tr>
<tr><td rowspan="2">M5</td><td colspan="2">Developing rotary motor</td><td colspan="3">drives the developing rotary</td></tr>
<tr><td>FK2-0025</td><td colspan="2"></td><td>MTR>5</td><td>E021</td></tr>
<tr><td rowspan="2">M6</td><td colspan="2">Manual feed pre-registration motor</td><td colspan="3">drives the manual feed pickup assembly, pre-registration front roller</td></tr>
<tr><td>FL2-0477</td><td colspan="2"></td><td>MTR>6</td><td></td></tr>
<tr><td rowspan="2">M8</td><td colspan="2">Registration motor</td><td colspan="3">drives the registration roller</td></tr>
<tr><td>FL2-0476</td><td colspan="2"></td><td>MTR>8</td><td></td></tr>
<tr><td rowspan="2">M9</td><td colspan="2">Outside delivery motor</td><td colspan="3">drives the outside delivery roller, curl-removing roller</td></tr>
<tr><td>FM2-1244</td><td colspan="2"></td><td>MTR>9</td><td></td></tr>
<tr><td rowspan="2">M10</td><td colspan="2">Duplexing reversal motor</td><td colspan="3">drives the reversing 1/2 roller, duplexing inlet roller</td></tr>
<tr><td>FL2-0478</td><td colspan="2"></td><td>MTR>10</td><td></td></tr>
<tr><td rowspan="2">M11</td><td colspan="2">Duplexing left motor</td><td colspan="3">drives the duplexing left roller</td></tr>
<tr><td>FK2-0032</td><td colspan="2"></td><td>MTR>11</td><td></td></tr>
<tr><td rowspan="2">M12</td><td colspan="2">Duplexing middle motor</td><td colspan="3">drives the duplexing confluence roller</td></tr>
<tr><td>FL2-0479</td><td colspan="2"></td><td>MTR>12</td><td></td></tr>
</table>

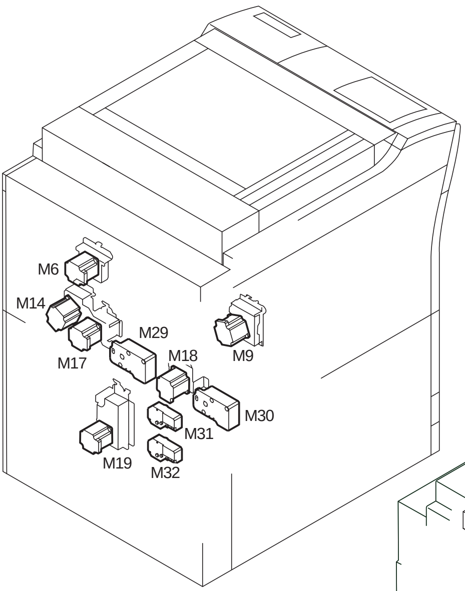
Notation	Name		Description	
	Parts No.	I/O	PART-CHK	E code
M13	Duplexing right motor		drives the duplexing right roller, duplexing outlet roller	
	FL2-0480		MTR>13	
M14	Right deck pull-off motor		drives the vertical path 1 roller	
	FL2-0583		MTR>14	
M15	Vertical path motor		drive the vertical path 3/4 roller	
	FL2-0583		MTR>15	
M17	Right deck pickup motor		Dives the right deck pickup assembly, vertical path roller 2	
	FL2-0582		MTR>17	
M18	Left deck pickup motor		drives the left deck pickup assembly	
	FL2-0581		MTR>18	
M19	Cassette pickup motor		drives the cassette 3/4 pickup assembly	
	FL2-0581		MTR>19	
M20	Secondary transfer outside roller shift motor		shifts the secondary transfer outside roller	
	FK2-0031		MTR>20	E077
M21	ITB cleaner shift motor		shifts the ITB cleaner	
	FK2-0155		MTR>21	E078
M22	Outside heating roller shift motor		shifts the outside heating roller	
	FK2-0153		MTR>22	E009/E079
M23	Hopper stirring motor		stirs toner (black) inside the hopper assembly	
	FK2-0015		MTR>23	E020
M25	Black toner supply motor		supplies toner from the black toner bottle	
	FK2-0015		MTR>25	E025
M26	Primary charging wire cleaning motor		drives the primary wire cleaner	
	FL2-0991		MTR>26	

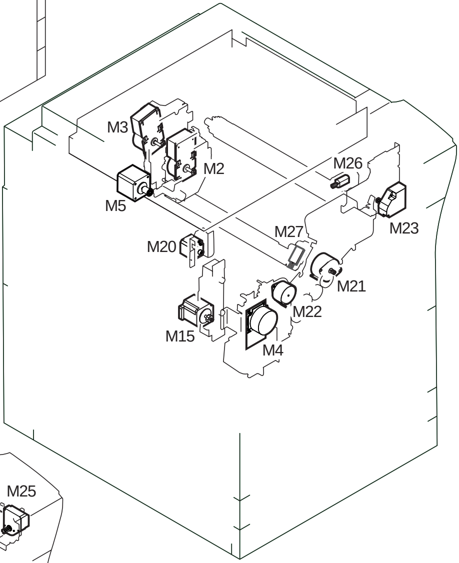
Notation	Name		Description	
	Parts No.	I/O	PART-CHK	E code
M27	Pre-transfer charging wire cleaning motor	drives the pre-transfer wire cleaner		
	FL2-0991		MTR>27	
M28	Horizontal registration motor	drives the horizontal registration sensor		
	FM2-0163		MTR>28	E051
M29	Right deck lifter motor	drives the right deck lifter		
	FK2-0017			
M30	Left deck lifter motor	drives the left deck lifer		
	FK2-0017			
M31	Cassette 3 lifer motor	drives the upper cassette lifter		
	FK2-0016			
M32	Cassette 4 lifter motor	drives the lower cast lifter		
	FK2-0016			

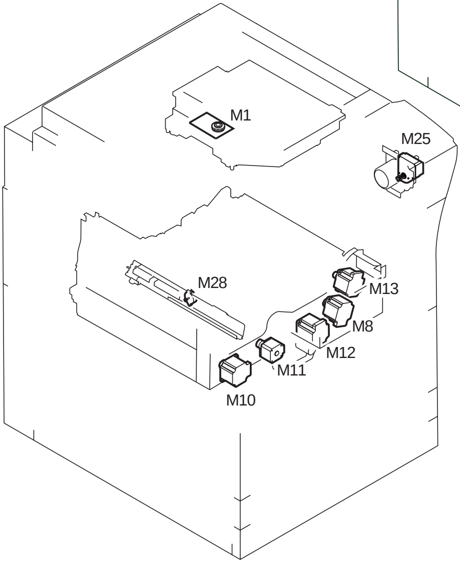
T-13-14

Notation	Connector No.		
	Fixing/feeding assembly driver PCB	Pickup driver PCB	DC controller PCB
M1			J1104
M2			J1109
M3			J1109
M4			J1118
M5			J1127
M6			J1122
M8	J1311/1302		J1119
M9			J1122
M10	J1310/1302		J1119

Notation	Connector No.		
	Fixing/feeding assembly driver PCB	**Pickup driver PCB**	**DC controller PCB**
M11	J1312/1302		J1119
M12	J1310/1302		J1119
M13	J1311/1302		J1119
M14		J1405/1402	J1115
M15		J1406/1402	J1115
M17		J1405/1402	J1115
M18		J1407/1402	J1115
M19		J1406/1402	J1115
M20	J1308/1302		J1115
M21			J1108
M22			J1118
M23			J1108
M25			J1108
M26			J1106
M27			J1108
M28	J1308/1302		J1119
M29		J1404/1403	J1116
M30		J1404/1403	J1116
M31		J1404/1403	J1116
M32		J1404/1403	J1116


M6
M14
M29
M17
M18
M9
M30
M31
M19
M32


M3
M2
M26
M5
M23
M27
M20
M21
M22
M15
M4


M1
M25
M28
M13
M8
M12
M11
M10

F-13-65

13.4.3 Fan

13.4.3.1 Fans

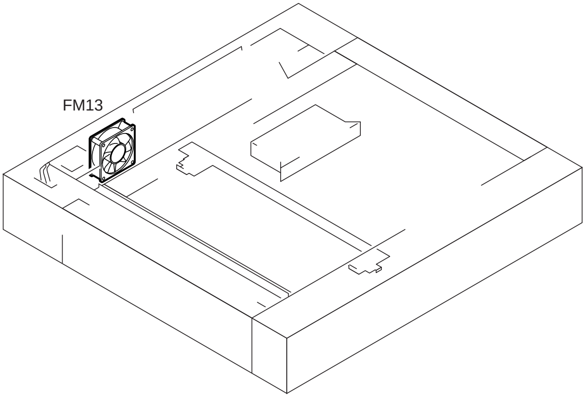
<Reader Unit>

T-13-15

Notation	**Name**		**Function**		
	Parts No.	**I/O**		**PART-CHK**	**E code**
FM13	Reader cooling fan		cools the reader assembly		
	FH5-1061				

T-13-16

Notation	**Connector No.**	
	Interface PCB	**Reader controller PCB**
FM13	J313/J308	J202



F-13-66

<Printer Unit>

T-13-17

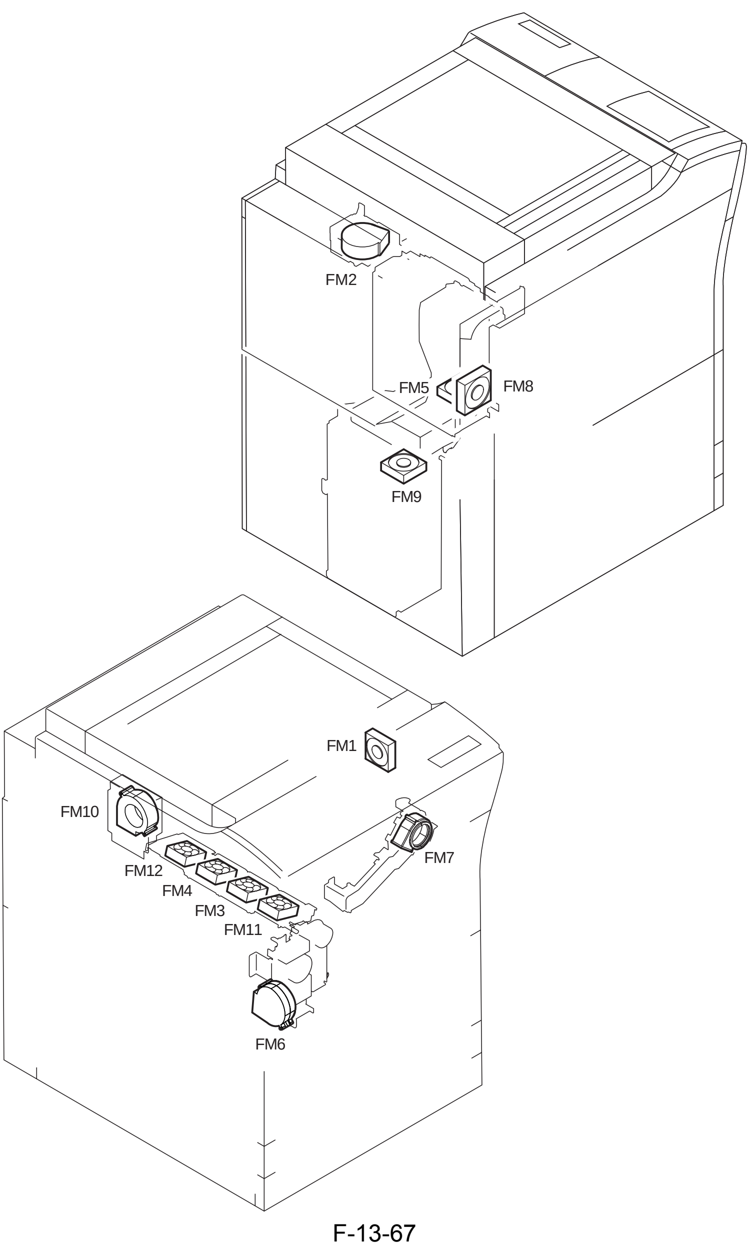
Notation	Name		Description		
	Parts No.	I/O		PART-CHK	E alarm code
FM1	primary charging suction fan		draws air from outside the machine to the primary charging assembly		
	FK2-0103			FAN-ON>1	E824-000
FM2	Primary charging assembly exhaust fan		discharges air from around the primary charging assembly		
	FK2-0124			FAN-ON>2	E824-0001
FM3	Feeding fan 1		keeps paper on the feed belt		
	FH5-1061			FAN-ON>3	330014
FM4	Feeding fan 2		keeps paper on the feed belt		
	FH5-1061			FAN-ON>4	330014
FM5	Fixing heat exhaust fan		discharges heat from the fixing assembly to the outside of the machine		
	FK2-0103			FAN-ON>5	E805-0003

Notation	Name		Description		
	Parts No.	I/O		PART-CHK	E alarm code
FM6	Delivery cooling fan 1		cools the delivery assembly		
	FK2-0124	P003-10 1:half speed	1:ON	FAN-ON>6	330001
FM7	Process unit cooling fan		cools the process unit		
	FL2-1185			FAN-ON>7	E820-0002
FM8	Control cooling fan		cools the inside of the controller box		
	FH5-1033	MN-CONT>P001	1:ON		
FM9	Power supply cooling fan		cools the DC power supply PCB		
	FK2-0524			FAN-ON>9	E804-0007
FM10	Delivery cooling fan 2		cools paper being delivered outside the machine (only if equipped with a finisher)		
	FK2-0124			FAN-ON>10	330007
FM11	Feeding fan 3		keeps paper on the feed belt		
	FH5-1061			FAN-ON>3	330015
FM12	Feeding fan 4		keeps paper on the feed belt		
	FH5-1061			FAN-ON>4	330015

T-13-18

Notation	Connector No.			
	Fixing/feeding driver PCB	DC power supply relay PCB	DC controller PCB	Main controller PCB (main)
FM1			J1117	
FM2			J1109	
FM3	J1305		J1119	
FM4	J1305		J1119	
FM5			J1110	
FM6	J1308		J1119	

Notation	Connector No.			
	Fixing/feeding driver PCB	DC power supply relay PCB	DC controller PCB	Main controller PCB (main)
FM7			J1108	
FM8				J1113
FM9		J124		
FM10			J1110	
FM11	J1308		J1119	
FM12	J1308		J1119	


FM2
FM5
FM8
FM9
FM1
FM10
FM7
FM12
FM4
FM3
FM11
FM6

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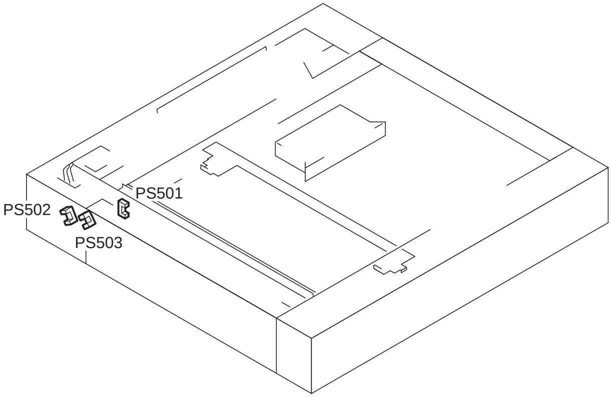
13.4.4 Sensor

13.4.4.1 Sensors

<Reader Unit>

T-13-19

Notation	**Name**		**Description**		
	Parts No.	**I/O**	**Connector No.**		**Jam/E code**
			Interface PCB	**Reader controller PCB**	
PS501	Scanner HP sensor	detects scanner home position			
	FK2-0149		J310/J308	J202	
PS502	ADF open/closed sensor 1	detects the state (open/closed) of the ADF			
	FK2-0149		J310/J307	J203	
PS503	ADF open/closed sensor 2	detects the timing of original size detection			
	FK2-0149		J310/J308	J202	



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<Printer Unit>

T-13-20

Notation	Name		Description		
	Parts No.	I/O	Connector No.		Jam/E code
			Feed driver PCB	DC controller PCB	
PS1	ITB HP sensor A		detects the ITB home position		
	FK2-0161	P004-10 1:HP		J1121	E070
PS2	Patch image read sensor		checks the density of the toner on the ITB		
	FH7-7601			J1121	
PS3	Transparency sensor (front)		detects registration paper (if not transparency); detects transparency (if transparency)		
	FM2-0850 FM2-0851		J1305/ J1302	J1119	xx0A, 0D90, 0D91, 0D92, 0D93
PS4	ATR sensor		checks the density of toner on the developing cylinder		
	FM2-0422			J1106	E020
PS5	Upper right cover open/closed sensor		detects the state (open/closed) of the upper right cover		
	FK2-0149	P002-0 0:open		J1117	
PS6	Manual feed paper sensor		Detects the presence/absence of paper from the manual feeder		
	FK2-0149	P007-14 1:paper present		J1107	
PS7	Last sheet sensor		identifies the last sheet from the manual feeder		
	FK2-0149	P007-15 1:paper present		J1107	
PS8	Developing rotary solenoid sensor		detects the activation of the developing rotary solenoid		
	FK2-0149	P004-12 1:ON(rotary lock)		J1106	
PS9	Registration sensor		detects registration paper		
	FK2-0149		J1305/ J1302	J1119	xx0A, 0D91

Notation	Name		Description		
	Parts No.	I/O	Connector No.		Jam/E code
			Feed driver PCB	DC controller PCB	
PS10	Post-transfer sensor	detects paper after transfer			
	FK2-0149		J1305/ J1302	J1119	xx0B (except stationary)
PS11	Fixing inlet sensor	detects paper at the fixing inlet			
	FK2-0149	P006-6 1:paper present		J1124	xx15 (stationary only)
PS12	Inside delivery sensor	detects inside delivery paper			
	FK2-0149		J1307/ J1303	J1119	xx0C (except stationary)
PS13	Outside delivery sensor	detects outside delivery paper			
	FK2-0149	P006-7 1:paper present		J1110	xx0E
PS14	Reversal sensor	detects reversed paper			
	FK2-0149		J1307/ J1303	J1119	xx0D (face-down delivery only)
PS15	Reversal vertical path sensor	detects reversal vertical path paper			
	FK2-0149		J1307/ J1303	J1119	xx0F
PS17	Duplexing left sensor	detects duplexing left paper			
	FK2-0149		J1307/ J1303	J1119	xx11
PS18	Duplexing confluence sensor	detects duplexing confluence paper			
	FK2-0149		J1307/ J1303	J1119	xx12
PS19	Developing rotary HP sensor	detects developing rotary home position			
	FK2-0149			J1106	E021
PS20	Web length sensor	detects the remaining length of the fixing cleaning web			
	FK2-0149	P009-2 1:web absent		J1118	

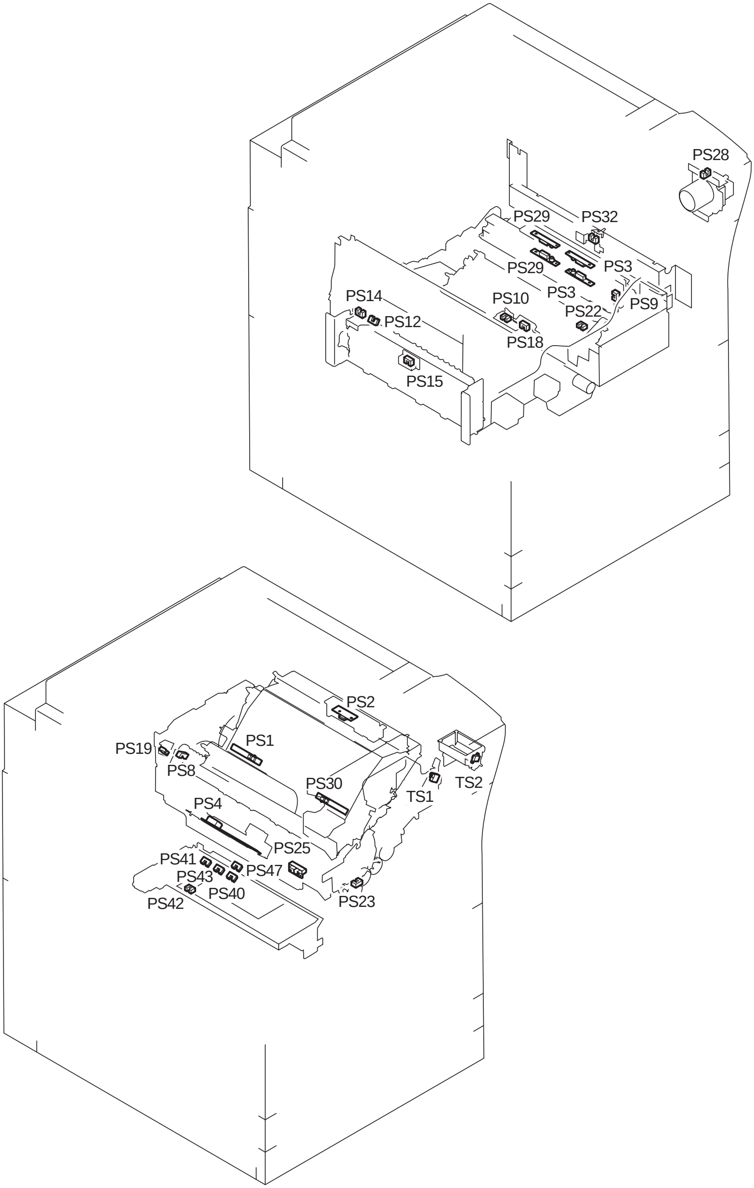
Notation	Name		Description		
	Parts No.	I/O	Connector No.		Jam/E code
			Feed driver PCB	DC controller PCB	
PS21	Outside heating roller HP sensor	detects the outside heating roller home position			
	FK2-0149	P004-9 1:HP		J1118	E079
PS22	Secondary transfer outside roller HP sensor	detects the secondary transfer outside roller home position			
	FK2-0149		J1305/ 1302	J1119	E077
PS23	ITB cleaning HP sensor	detects the ITB cleaner home position			
	FK2-0149	P004-8 1:HP		J1108	
PS24	Horizontal registration sensor	detects duplexing horizontal registration			
	FH7-7196		J1307/ J1303	J1119	E051
PS25	Color toner level sensor	detects the remaining level of color toner			
	FK2-0003	P009-9 1:toner present		J1106	
PS26	Color toner cartridge sensor	detects the presence/absence of a color toner cartridge			
	FK2-0004	P009-12 1:set		J1106	
PS28	Hopper assembly open/closed sensor	detects the state (open/closed) of the hopper assembly			
	FK2-0149	P009-13 0:open		J1108	
PS29	Transparency sensor (rear)	detects registration paper (if not transparency), detects a transparency (if transparency)			
	FM2-0850 FM2-0851		J1305/ J1302	J1119	xx0A, 0D90, 0D91, 0D92, 0D93
PS30	ITB HP sensor B	detects the ITB home position			
	FK2-0161	P004-11 1:HP		J1121	
PS31	Vertical path 0 sensor	detects paper in the vertical path 0			
	FK2-0149	P006-1 1:paper present		J1107	xx09 (only if from right deck)

Notation	Name	Description			
	Parts No.	I/O	Connector No.		Jam/E code
			Feed driver PCB	DC controller PCB	
PS32	Vertical path confluence sensor	detects paper at the pickup vertical path confluence			
	FK2-0149	P006-0 1:paper present		J1117	
PS33	Right deck pickup sensor	detects paper from the right deck			
	FK2-0149	P007-9 1:paper present		J1113	xx01 (except stationary)
PS34	Right deck limit sensor	detects the right deck limit			
	FK2-0149	P005-9 1:limit state		J1113	
PS35	Right deck paper sensor	detects the presence/absence of paper in the right deck			
	FK2-0149	P005-8 1:paper present		J1113	
PS36	Right deck lifter sensor	detects the right deck lifter			
	FK2-0149	P005-10 0:pickup state(paper present)		J1113	
PS37	Right deck paper level sensor A	detects the remaining level of paper in the right deck			
	FK2-0149	P005-11 1:50% or more of capacity		J1111	
PS38	Right deck paper level sensor B	detects the remaining level of paper in the right deck			
	FK2-0149	P005-12 1:50% to 25% of capacity		J1111	
PS39	Right deck sensor	detects the presence/absence of the right deck			
	FK2-0149			J1110	
PS40	Left deck pickup sensor	detects pickup from the left deck			
	FK2-0149	P007-8 1:paper present		J1113	xx02 (except stationary)
PS41	Left deck limit sensor	detects the left deck limit			
	FK2-0149	P004-1 1:limit state		J1113	
PS42	Left deck paper sensor	detects paper in the left deck			
	FK2-0149	P004-0 1:paper present		J1113	

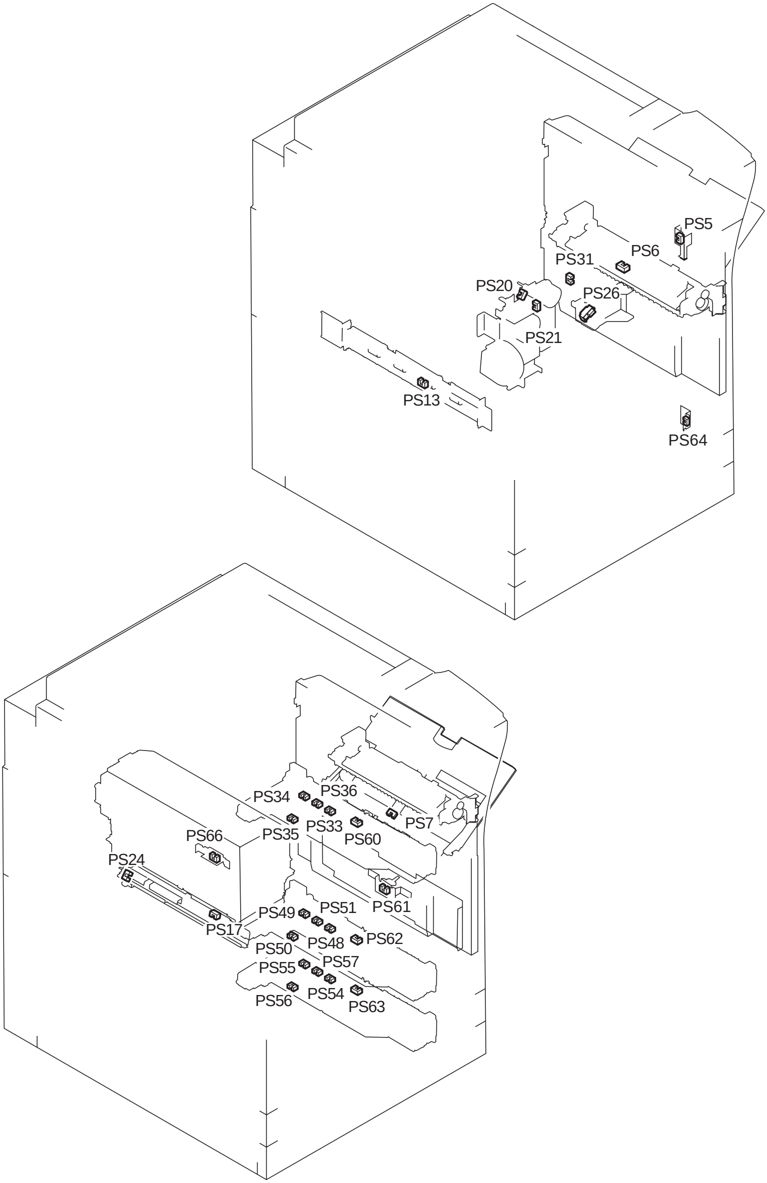
Notation	Name		Description		
	Parts No.	I/O	Connector No.		Jam/E code
			Feed driver PCB	DC controller PCB	
PS43	Left deck lifter sensor	detects the left deck lifer			
	FK2-0149	P004-2 0:pickup state(paper prresent)		J1113	
PS44	Left deck paper level sensor A	detects the remaining level of paper in the left deck			
	FK2-0149	P004-3 1:50% or more of capacity		J1111	
PS45	Left deck paper level sensor B	detects the remaining level of paper in the left deck			
	FK2-0149	P004-4 1:50% to 25% of capacity		J1111	
PS46	Left deck paper sensor	detects paper in the left deck			
	FK2-0149			J1110	
PS47	Left deck stationary paper sensor	detects stationary paper in the left deck			
	FK2-0149	P007-12 1:paper present		J1113	
PS48	Cassette 3 pickup sensor	detects pickup from the cassette 3			
	FK2-0149	P007-11 1:paper present		J1114	xx03 (except stationary)
PS49	Cassette 3 limit sensor	detects the cassette 3 limit			
	FK2-0149	P005-1 1:limit state		J1114	
PS50	Cassette 3 paper sensor	detects paper in the cassette 3			
	FK2-0149	P005-0 1:paper present		J1114	
PS51	Cassette 3 lifter sensor	detects the cassette 3 lifter			
	FK2-0149	P005-2 1:pickup state(paper present)		J1114	
PS52	Cassette 3 paper level sensor A	detects the remaining level of paper in the cassette 3			
	FK2-0149	P005-3 1:50% or less of capacity		J1117	

Notation	Name		Description		
	Parts No.	I/O	Connector No.		Jam/E code
			Feed driver PCB	DC controller PCB	
PS53	Cassette 3 paper level sensor B		detects the remaining level of paper in the cassette 3		
	FK2-0149	P005-4 1:10% or less of capacity		J1117	
PS54	Cassette 4 pickup sensor		detects pickup from the cassette 4		
	FK2-0149	P007-11 1:paper present		J1114	xx04 (except stationary)
PS55	Cassette 4 limit sensor		detects the cassette 4 limit		
	FK2-0149	P006-9 1:limit state		J1114	
PS56	Cassette 4 paper sensor		detects paper in the cassette 4		
	FK2-0149	P006-8 1:paper present		J1114	
PS57	Cassette 4 lifter sensor		detects the cassette 4 lifter		
	FK2-0149	P006-10 0:pickup state(paper present)		J1114	
PS58	Cassette 4 paper level sensor A		detects the remaining level of paper in the cassette 4		
	FK2-0149	P006-11 0:50% or less of capacity		J1117	
PS59	Cassette 4 paper level sensor B		detects the remaining level of paper in the cassette 4		
	FK2-0149	P006-12 0:10% or less of capacity		J1117	
PS60	Vertical path 1 sensor		detects paper in the pickup vertical path 1		
	FK2-0149	P006-2 1:paper present		J1113	xx08 (except stationary)
PS61	Vertical path 2 sensor		detects paper in the pickup vertical path 2		
	FK2-0149	P006-3 1:paper present		J1112	xx04
PS62	Vertical path 3 sensor		detects paper in the pickup vertical path 3		
	FK2-0149	P006-4 1:paper present		J1114	xx06

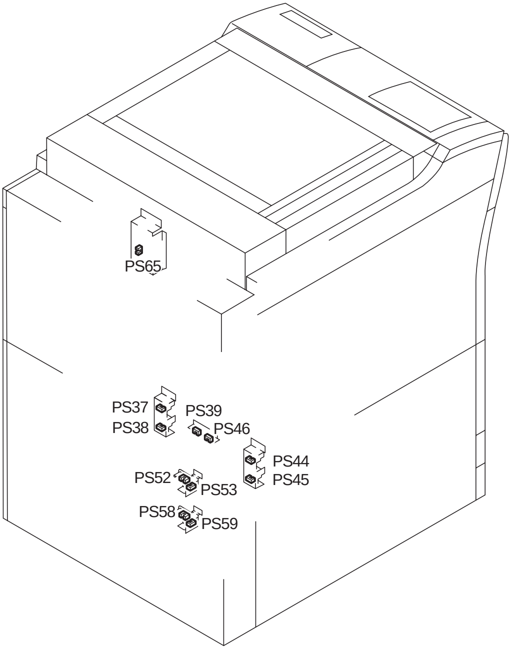
Notation	Name		Description		
	Parts No.	I/O	Connector No.		Jam/E code
			Feed driver PCB	DC controller PCB	
PS63	Vertical path 4 sensor		detects paper in the pickup vertical path 4		
	FK2-0149	P006-5 1:paper present		J1114	xx05
PS64	Lower right cover open/closed sensor		detects the state (pen/closed) of the lower right cover		
	FK2-0149	P002-1 0:open		J1112	
PS65	Drum HP sensor		detects the home position of the photosensitive drum		
	FK2-0149			J1109	


PS28
PS29
PS32
PS29
PS3
PS3
PS9
PS14
PS12
PS10
PS22
PS18
PS15
PS2
PS1
PS19
PS8
PS30
TS2
TS1
PS4
PS25
PS41
PS47
PS43
PS40
PS42
PS23

F-13-69


PS5
PS6
PS31
PS20
PS26
PS21
PS13
PS64
PS34
PS36
PS7
PS35
PS33
PS60
PS66
PS24
PS61
PS49
PS51
PS17
PS48
PS62
PS50
PS57
PS55
PS54
PS56
PS63

F-13-70


PS65
PS37
PS38
PS39
PS46
PS44
PS45
PS52
PS53
PS58
PS59

F-13-71

13.4.5 Switch

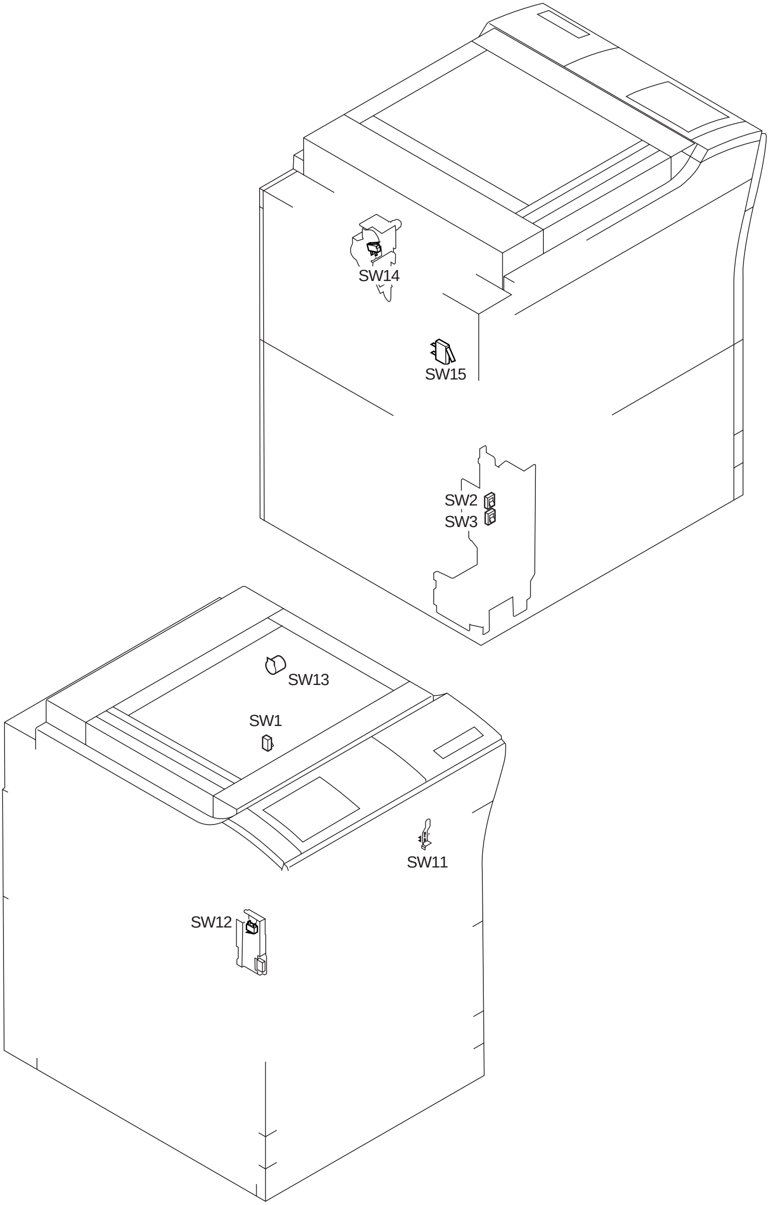
13.4.5.1 Switches

<Reader Unit>
The reader unit does not have any switch.

<Printer Unit>

T-13-21

Notation	Name		Description		
	Parts No.	**I/O**	**COPIER>FUNCTION**	**Connector**	**E code**
SW1	Main power switch		turns on/off the main power		
	FK2-0140				
SW2	Environment switch		turns on/off the drum heater, reader heater, cassette heater, deck heater		
	FM2-0844				
SW3	Cassette heater switch		turns on/off the cassette heater, deck heater		
	FM2-0844				
SW11	Upper right cover open/closed switch		detects the upper right cover		
	FM2-0960				
SW12	Front cover switch		detects the front cover		
	FM2-0398	P002-2 1:open			
SW13	Control key		control key		
	FG3-3004		INSTALL>KEY 0: do not recognize control key function 1: recognize control key function	J1208	
SW14	Waste toner lock detection switch		detects the state (locked/unlocked) of the waste toner screw		
	WC4-0241				E013-0002
SW15	Fixing/feeding lock switch		detects the state (locked/unlocked) of the feeder release lever		
	FC5-2496				


SW14
SW15
SW2
SW3
SW13
SW1
SW11
SW12

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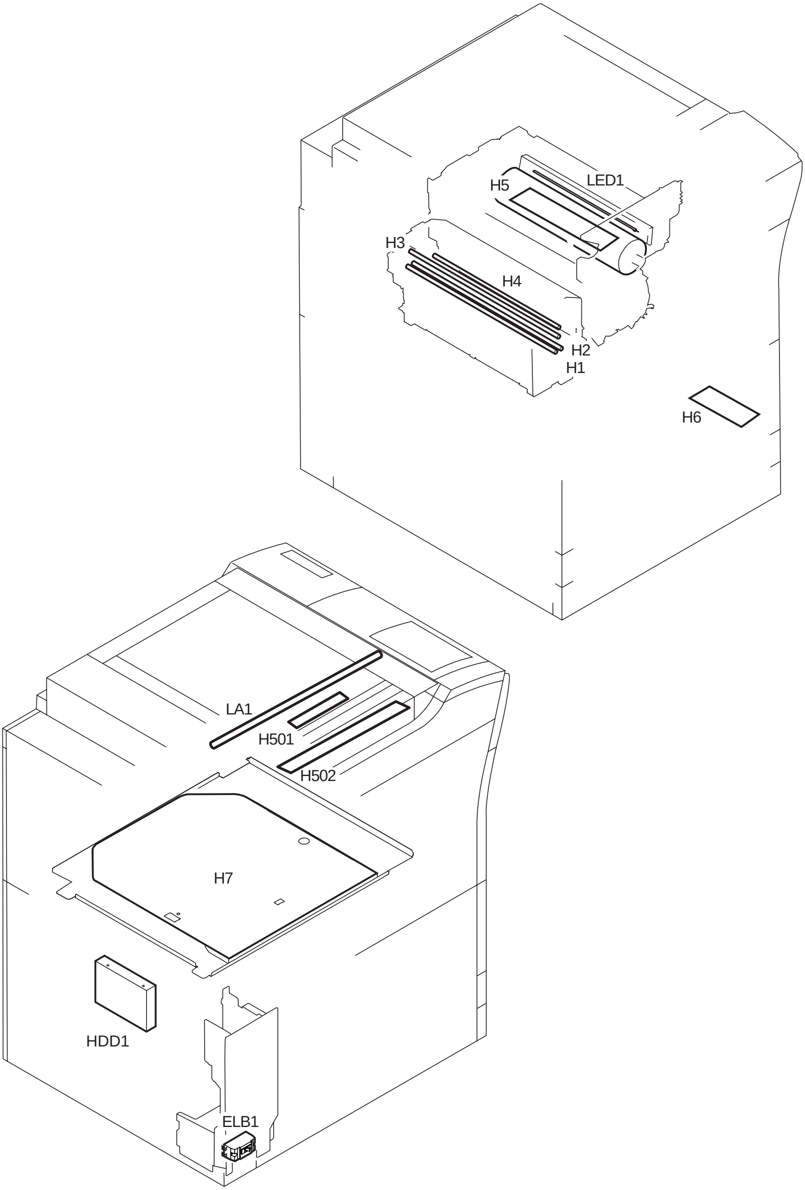
13.4.6 Lamps, Heaters, and Others

13.4.6.1 Heaters, Lamps, and Others


LED1
H5
H3
H4
H2
H1
H6
LA1
H501
H502
H7
HDD1
ELB1

F-13-73

T-13-22

Notation	Name	Description	
	Parts No.	PART-CHK	E code
H1	Fixing main heater	main heater (controls the fixing roller temperature)	
	FK2-0043(100V)		E000,E001,E004
	FK2-0048(120V)		
	FK2-0053(230V)		
H2	Fixing sub heater	sub heater (controls the fixing roller temperature)	
	FK2-0044(100V)		E000,E001,E004
	FK2-0049(120V)		
	FK2-0054(230V)		
H3	Shift heater	shift heater (keeps the shift roller heated)	
	FK2-0045(100V)		E000,E001,E004
	FK2-0050(120V)		
	FK2-0055(230V)		
H4	Outside heating roller heater	fixing auxiliary heater (helps keep the fixing roller heated)	
	FK2-0047(100V)		E000,E001,E004
	FK2-0052(120V)		
	FK2-0057(230V)		
H5	Drum heater	prevents condensation on the drum	
	FL2-0419(100V)		
	FL2-0535(120V)		
	FL2-0536(230V)		
H7	Cassette heater	prevents absorption of moisture by paper inside the cassette	
	FH7-4740(100V)		
	FM2-0564(230V)		
H501	Lens heater	prevents condensation on the lens	
	FK2-0226(100V)		
	FK2-0229(230V)		

Notation	Name	Description	
	Parts No.	PART-CHK	E code
H502	Mirror heater	prevents condensation on the mirror	
	FK2-0227(100V)		
	FK2-0229(230V)		
ELCB1	Leakage breaker	leakage breaker	
	FK2-0151(100V)		
	FK2-0152(120V)		
	FK2-0150(230V)		
HDD1	Hard disk	holds programs, images	
	WM2-5208		E602,E606
LED1	Pre-exposure LED	removes residual charges from the photosensitive drum	
	FK2-0005		
LA1	scanning lamp	illuminates originals	
	FK2-0224	MISC-R>SCANLAMP	E225

T-13-23

Notation	Main controller PCB	Inverter PCB	Reader controller PCB	AC driver PCB	DC controller PCB
H1				J1803/1810	J1105
H2				J1803/1810	J1105
H3				J1804/1810	J1105
H4				J1804/1810	J1105
H5				J1805/1810	J1105
H7				J1806/1810	J1105
H501				J1807	-----
H502				J1807	-----

Notation	Main controller PCB	Inverter PCB	Reader controller PCB	AC driver PCB	DC controller PCB
ELCB1				J1801	-----
HDD1	J2126/1204				
LED1					J1106
LA1		J602/601	J206		

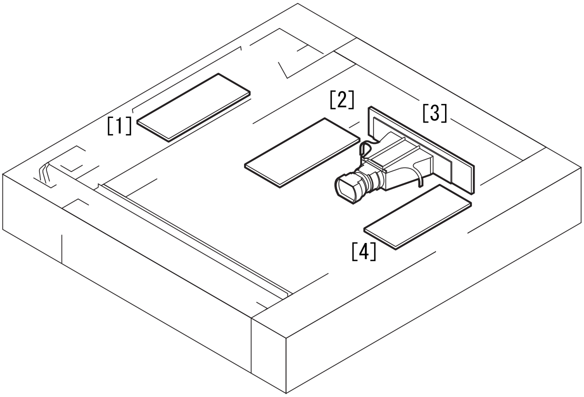
13.4.7 PCBs

13.4.7.1 PCB

<Reader Unit>

T-13-24

Notation	Name	Parts No.	Description
[1]	Interface PCB	FM2-1102	communicates with the printer unit, ADF
[2]	Reader controller PCB	FM2-1101	controls the reader unit
[3]	CCD/AP PCB	FM2-0617 (CCD unit)	performs analog image processing
[4]	Inverter PCB	FK2-0225	drives the scanning lamp



F-13-74

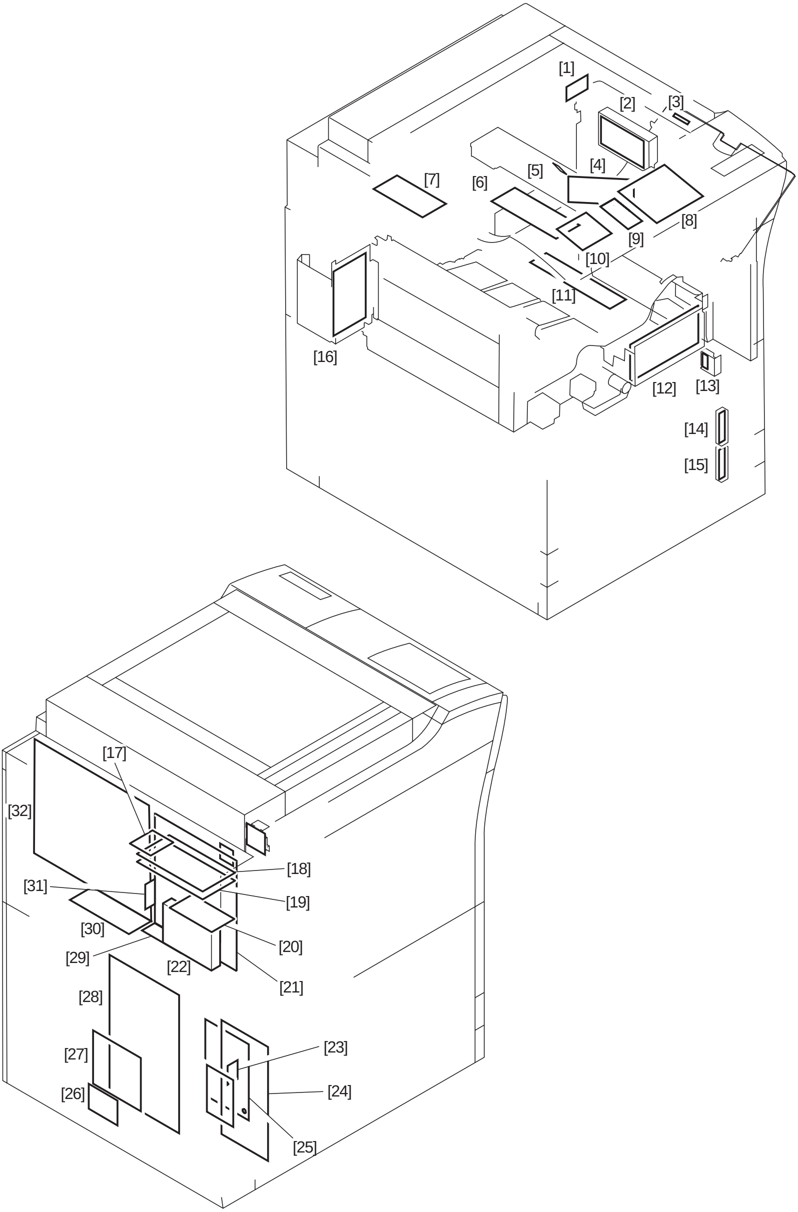
<Printer Unit>

T-13-25

Notation	Name	Parts No.	Description
[1]	BD PCB	FM2-0394(laser scanner)	generates the BD signal
[2]	Potential control PCB	FM2-0444(potential sensor unit)	converts the potential sensor output
[3]	Manual feed paper width PCB	FH7-7600	detects the width of paper from the manual feeder
[4]	Laser driver PCB	FM2-0394(laser scanner)	controls the drive of the laser unit
[5]	Potential sensor	FM2-0444(potential sensor unit)	measures the surface potential of the photosensitive drum
[6]	Drum heater PCB	FM2-0841(100/120), 0842(230)	controls the drum heater
[7]	HVT2	FM2-0528	controls the developing (black, color), primary transfer, primary static eliminator bias

Notation	Name	Parts No.	Description
[8]	Keypad PCB	FM2-1250	controls the input information from the keypad
[9]	Control panel inverter PCB	FM2-1251	controls the back-light activation of the LCD
[10]	Control panel CPU PCB	FM2-1249	controls the panel
[11]	HVT3	FM2-0826	controls the secondary transfer bias
[12]	Fixing/feeding driver PCB	FM2-0822	controls the sensors, motors, fans, and solenoids of the fixing/feeding and duplexing assemblies
[13]	Environment sensor	FK2-0160	takes measurements of the environment
[14]	Cassette 3 paper size detection PCB	FM2-0849	detects the size of the cassette 3
[15]	Cassette 4 paper size detection PCB	FM2-0849	detects the size of the cassette 4
[16]	DC/DC converter PCB 1	FM2-0832	converts DC power supply
[17]	SRAM PCB	FG3-2860	holds service mode settings/HDD control information
[18]	Expansion bus PCB	FM2-0536	controls the color LCD controller, card reader I/F
[19]	Main controller PCB (sub)	FM2-0535	connects the image signals from the reader units
[20]	Ethernet PCB	FM2-0538	connects to the network
[21]	Main controller PCB (main)	FG3-2857	processes image data for output to the printer unit
[22]	HDD	WM2-5208	holds system software, image data
[23]	Environment switch PCB	FM2-0523(100), 0550(120), 0551(230) (power code terminal assembly)	switches the heater

Notation	**Name**	**Parts No.**	**Description**
[24]	AC drive PCB	FM2-0523(100), 0550(120), 0551(230) (power code terminal assembly)	controls AC drive
[25]	Pickup drive PCB	FM2-0823	controls the motor of the pickup assembly
[26]	DC/DC converter PCB 2	FM2-0848	converts DC power supply
[27]	DC power relay PCB	FM2-0843	turns on/off the DC power supply, protects against over-voltage/over-current
[28]	DC power supply PCB	FM2-0524(100/120), 1229(230)	generates DC power
[29]	SDRAM	WA7-2922	temporarily holds image data
[30]	HVT1	FM2-0527	controls primary charging, grid, pre-transfer charging bias
[31]	Boot ROM		starts up the system
[32]	DC controller PCB	FM2-0821(100), 0857(120), 0858(230)	controls the printer unit/accessories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[24]
[26]
[25]

F-13-75

13.4.8 Variable Resistors (VR), Light-Emitting Diodes (LED), and Check Pins by PCB

13.4.8.1 Variable Resistors (VR), Light-Emiting Diodes (LED), and Check Pins by PCB

Of the variable resistors (VR), light-emitting diodes (LED), and check pins used in the machine those needed in the field are discussed.

⚠

- Although normal, some LEDs may emit dim light when they remain off becouse of leakege current.
- Keep the following symbols in mind;

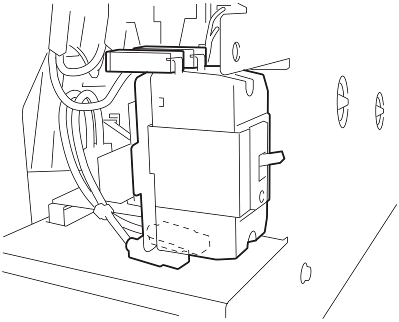
●---VR that may be used in the field.

⊘---VR that must not be used in the field.

13.4.8.2 Points to Note About the Leakage Breaker

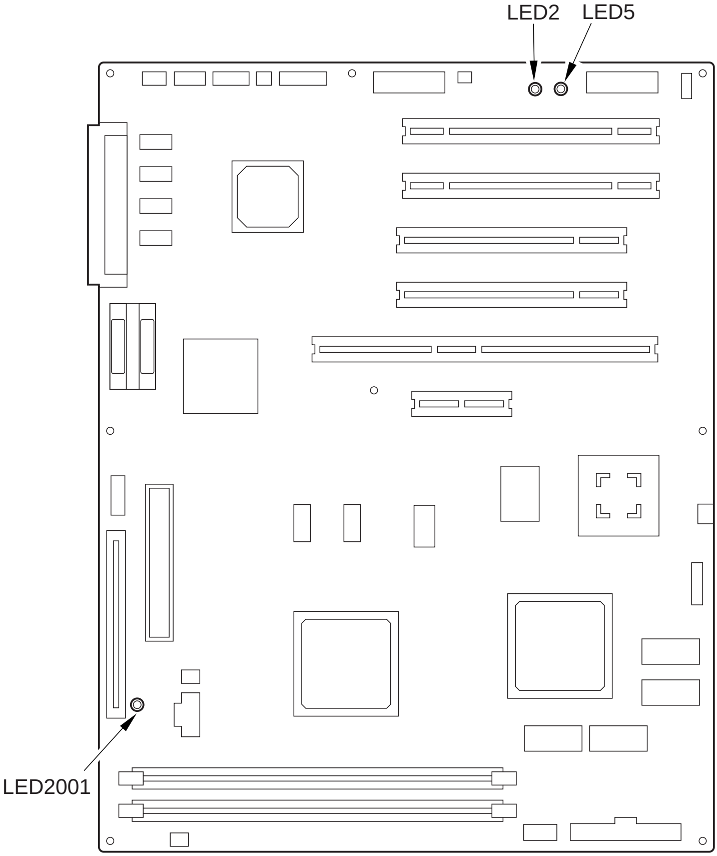
⚠ **Points to Note When Checking the Output of the PCBs**

Normally, an AC voltage is being applied to the terminals of the leakage beaker [1]. Take full care not to touch them when making a check.



F-13-76

13.4.8.3 Main Controller PCB (main)

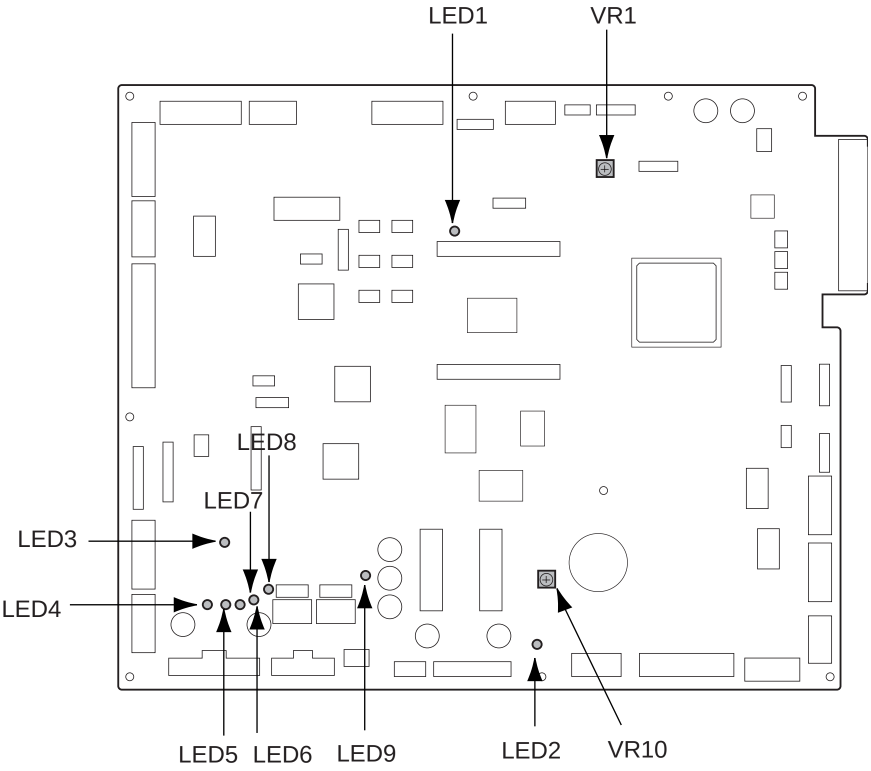


F-13-77

T-13-26

Notation	Description
LED2001	in operation
LED2	+3.3 V (all night) being supplied
LED5	+3.3 V (non-all night) being supplied

13.4.8.4 DC Controller PCB

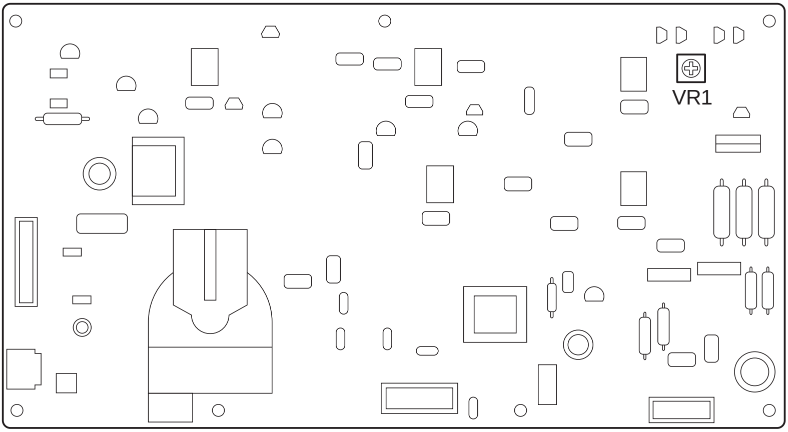

LED1
VR1
LED8
LED7
LED3
LED4
LED5
LED6
LED9
LED2
VR10

F-13-78

T-13-27

Notation	Description
VR1,VR10	for factory
LED1-9	in operation

13.4.8.5 HV1 PCB

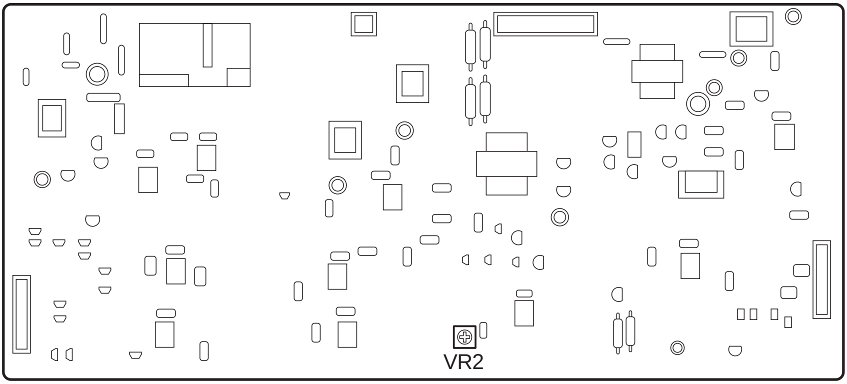


F-13-79

T-13-28

Notation	Description
VR1	for factory

13.4.8.6 HV2 PCB

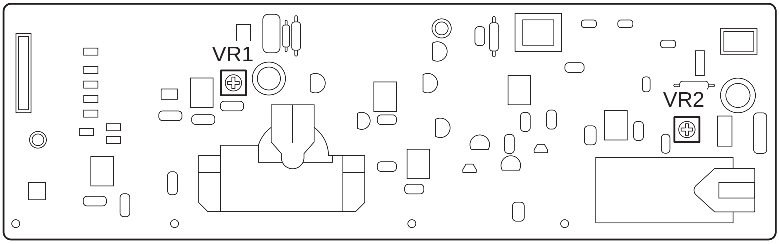


F-13-80

T-13-29

Notation	Description
VR2	for factory

13.4.8.7 HV3 PCB



F-13-81

T-13-30

Notation	Description
VR1	for factory
VR2	for factory

Chapter 14

Self
Diagnosis

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14.3.34 E248 14-44
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14.1 Error Code Table

14.1.1 Error Code

The machine is equipped with a self diagnostic mechanism which runs a check on the machine (particularly, on sensor output) at such times as programmed in advance, indicating the nature of any error it may have come across.

The following is a compilation of error codes, with descriptions of how they are identified and possible causes.

The 4-digit code is indicated to offer details, and may be checked in service mode (COPIER>DISPLAY>ERR).

T-14-1

Code	Description
E000	at power-on, the temperature of the fixing assembly is not high enough
E001	the temperature of the fixing assembly is abnormally high
E002	the temperature of the fixing assembly is not high enough
E003	the temperature of the fixing assembly drops abnormally after standby
E004	there is an error in the fixing assembly protection circuit
E005	there is an error in the take-up of the web
E006	there is an error in the connection of the fixing assembly
E008	there is an error in relation to the life of the fixing assembly
E009	there is an error in the shift of the external heating roller
E012	there is an error in the drum/ITB motor
E013	there is clogging by waste toner
E014	there is an error in the fixing motor
E020	there is an ATR error
E021	there is an error in the rotation of the developing assembly
E023	the developing sleeve motor does not rotate normally
E025	there is an overcurrent in the toner feed motor or the cartridge motor

Code	Description
E032	the NE controller counter does not operate
E043	there is an error in the 3.5K paper deck pickup motor, causing an error signal
E051	the horizontal registration home position is not detected within a specific period of time
E061	during potential control, a specific level of potential is not obtained or the limiter goes on
E070	there is an error in the detection of ITB home position
E073	with the front door closed, the transfer drawer connector or the transfer frame drawer connector is not connected
E077	the home position of the secondary transfer roller (engagement) is not detected
E078	the home position of the transfer belt cleaner unit (engagement) is not detected
E079	the home position of the outside heating roller (engagement) is not detected
E100	the BD is not detected
E110	there is an error in the scanner motor
E197	there is an error in the communication with the fixing/feed PCB
E202	there is a home position error
E225	the lamp has blown
E227	there is an error in the power supply (24 V)
E240	there is a DDI-P communication error (error in the communication between master and slave 0)
E248	there is an error in EEPROM
E351	there is an error in the main controller PCB (sub)
E400	there is a DF communication error
E413	there is an error in the DF shift motor
E490	the DF is of the wrong model
E500	there is a finisher communication error (common among finishers)
E503	there is an error within the finisher (finisher R1/R2)
E505	there is an error in the backup memory of the finisher (finisher R1/R2)
E514	there is an error in the trailing edge assist motor (finisher R1/R2)

Code	Description
E519	there is an error in the gear change motor (finisher R1/R2)
E530	there is an error in front alignment (finisher R1/R2)
E531	there is a stapling error (finisher R1/R2)
E532	there is an error in the shift of the stapler (finisher R1/R2)
E535	there is an error in the swing of the stapler (finisher R1/R2)
E537	there is an error in rear alignment (finisher R1/R2)
E540	there is an error in the up/down movement of the upper tray (finisher R1/R2)
E542	there is an error in the up/down movement of the lower tray (finisher R1/R2)
E584	there is an error in the shutter unit (finisher R1/R2)
E590	there is an error in the punch motor (punch unit)
E591	there is an error in the punch dust sensor (punch unit)
E592	there is an error in the punch horizontal sensor (punch unit)
E593	there is an error in the punch shift motor (punch unit)
E5F0	there is an error in saddle paper positioning
E5F1	there is an error in saddle paper folding
E5F2	there is an error in the saddle guide
E5F3	there is an error in saddle alignment
E5F4	there is an error in saddle rear stapling
E5F5	there is an error in saddle front stapling
E5F6	there is a saddle butting error
E5F8	there is an error in the saddle connector
E5F9	there is an error in saddle stitching
E602	there is a hard disk error
E604	there is a shortage of image memory (SDARM)
E605	there is an error in the image memory battery
E606	there is an error on the hard disk
E674	there is a fax board error

Code	Description
E677	there is an external controller error
E710	there is an IPC initialization error
E711	there is an IPC communication error
E712	there is an error in the communication between ADF and reader
E713	there is a finisher communication error
E717	there is an error in the communication with the NE controller
E719	there is an error in the communication with the coin vendor/card reader
E730	there is a PDL error
E731	there is a UFR board error
E732	there is a reader communication error
E733	there is a printer communication error
E740	there is an Ethernet board error
E743	there is a DDI communication error
E744	there is a language file/boot ROM error
E745	there is TokenRing board error
E746	the accessories board is of the wrong type
E747	there is an error in the ASIC for image processing or memory control; or, there is an error in the ASIC for communication control
E800	an interlock 24V off state has been identified for the fixing unit; with the door closed, the interlock 24V detection signal is off for 500 msec continuously
E804	there is a fan error (of any type)
E805	the fixing heat exhaust fan is identified as being closed; or, there is an error in the fan
E820	there is an error in the process unit cooling fan
E824	there is an error in the primary charging suction/exhaust fan

14.2 Error Codes (SEND)

14.2.1 Self-Diagnostic Display

T-14-2

Cause	Remedy
Scanning has stopped because the size of the data for the scanned original exceeds the limit. Scanning may be possible if [Data Cmprssn] is set to [High Ratio], Resolution is lowered, or [Sharpness] is reduced.	
Scanning was stopped because the data size of the scanned original exceeded the maximum data size that the machine could handle.	By selecting [High Ratio] for Data Compression Ratio, lowering the Resolution, and lowering the Sharpness setting, scanning may become possible.
Out of resources. Wait for a moment, then perform operation again.	
You cannot browse the network. There is a lack of TCP/IP resources because documents have just been continuously sent or are being continuously sent through FTP or Windows (SMB).	Wait for a while, and try browsing again.
Set the IP Address.	
This machine is not set with an IP address.	Specify the IP Address Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen), then turn the machine's main power OFF and back ON again.
No response from the server. Check the settings.	
The specified server settings are incorrect, or the server is not turned ON. Alternatively, the machine's TCP/IP resources may be low.	Wait for a while, and try browsing again. If there is still no response from the server, try selecting another server.
NetWare is in use. Wait for a moment, then perform operation again.	
You cannot browse the network because NetWare is printing through a Pserver or NDS PServer.	Wait until printing is complete, then try browsing again.

Cause	Remedy
There are too many subdirectories.	
You have exceeded the maximum number of subdirectory levels allowed.	Specify a different destination because the directory level that you are trying to access cannot be specified.
No response.	
The server was not running when you tried to send.	Make sure that the server is ON, and check the destination.
The network connection was lost when you tried to send. (Either you could not connect to the destination, or the connection was lost before the job could be completed.)	Check the status of the network.
You tried to send through NetWare, but the Tree name was not entered.	Enter the Tree name.
A TCP/IP error occurred when you tried to send an e-mail message or an I-fax.	Check that the network cables and connectors are properly connected.
Check the TCP/IP.	
The machine's TCP/IP connection is not operating.	Check the IP Address Settings (IP Address, DHCP, RARP, BOOTP) in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).
Cannot find the selected server. Check the settings.	
The IP address that the machine should connect to cannot be determined.	1. Check the DNS Server Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen). 2. Check whether the DNS server's DNS settings are correct.
If Login Information in Register LDAP Server in System Settings (from the Additional Functions screen) is set to 'Use (security auth.)' for the LDAP server, the machine will not be able to determine the host name.	Check the DNS Server Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).
Cannot connect to the selected server. Check the settings.	

Cause	Remedy
The machine cannot connect to the specified IP address/port.	1. Check the Gateway Address setting in IP Address Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen). 2. Check the Server Address and Port Number in Register LDAP Server in System Settings (from the Additional Functions screen). 3. Check whether the LDAP server is operating normally. 4. If Login Information in Register LDAP Server in System Settings (from the Additional Functions screen) is set to 'Use (security auth.)' for the LDAP server, check whether UDP (User Datagram Protocol) packages are blocked by the filter.
Check the user name and password or check settings.	
When setting Login Information for the LDAP server to 'Use' or 'Use (security auth.)', the user name or password is incorrect.	Check the User and Password settings when Login Information in Register LDAP Server in System Settings (from the Additional Functions screen) is set to 'Use' or 'Use (security auth.)'.
When setting Login Information for the LDAP server to 'Use (security auth.)', the domain name is incorrect.	Check the Domain Name setting when Login Information in Register LDAP Server in System Settings (from the Additional Functions screen) is set to 'Use (security auth.)'.
Cannot complete searching due to timeout. Check the settings.	
The search could not be completed within the time specified under <Search Timeout>.	Increase the time setting for Search Timeout in Register LDAP Server in System Settings (from the Additional Functions screen).
The number of search results has exceeded limits. Change search conditions and try again.	
The number of addresses that meet the search criteria exceeds the specified maximum number of addresses to search.	1. Narrow down the search criteria, and then search again. 2. Increase the maximum number of addresses to search.
Search condition includes characters that cannot be used with the selected server.	

Cause	Remedy
"/" is used in the search criterion.	Remove "/" from the search criterion, and search again.
The combination of characters used in the search criterion does not constitute an acceptable search criterion. There is an unequal number of "(" and ")". "*" is not placed within "( )".	Make sure that the characters for the search criterion are combined properly, and search again.
If <Server LDAP version and character code> is set to 'ver.2 (JIS)', characters other than ASCII Code (0x20-0x7E) are being used.	Omit characters that cannot be used, and search again.
Cannot start searching because the version setting for the server is incorrect. Check the settings.	
Although 'ver. 3' is set as the server LDAP version number in Register LDAP Server in System Settings (from the Additional Functions screen), the LDAP server is running on version 2.	Set Server LDAP version and character code in Register LDAP Server in System Settings (from the Additional Functions screen) to 'ver. 2'.

14.2.2 List of Error Codes without Messages

T-14-3

Cause	Remedy
# 001	
Paper or originals are jammed.	Remove any jammed paper or originals.
# 003	
Communications that take longer than the preset time (64 minutes) caused the error.	1. Reduce the resolution, and try sending the document again. 2. When receiving a document, ask the remote party to either reduce the resolution at which the document is scanned, or divide the document into two or more parts before sending it.
# 005	

Cause	Remedy
The other party did not answer within 35 seconds.	Confirm that the remote machine is able to communicate, and try again.
The receiving machine is not a G3 fax.	Check the type of receiving machine with the receiving party.
# 009	
There is no paper.	Load paper.
The paper drawer is not correctly inserted into the machine.	Insert the paper drawer properly.
# 011	
The document that you are sending is not placed correctly.	Place the document properly in the feeder or on the platen glass, and repeat the whole procedure from the beginning.
# 012	
The document could not be sent because the receiving fax machine was out of paper.	Ask the receiving party to load paper into their fax machine.
# 018	
The receiving machine did not respond when your machine redialed.	Confirm that the receiving machine is able to communicate, and try again.
The documents could not be sent because the receiving machine was engaged.	Confirm that the receiving machine is able to communicate, and try again.
The settings on your machine do not match the settings on the receiving machine.	Confirm that the receiving machine is able to communicate, and try again.
# 022	
Forwarding could not be performed because all of the addresses stored under the specified Group destination have been deleted, or User Inboxes are specified as the Group destination.	Re-enter the forwarding address and try sending again.
Transmission could not be performed because the specified destination was deleted while the documents were waiting to be sent.	Re-enter the address in the address book and try sending again.
# 037	

Cause	Remedy
Documents could not be received because there was insufficient memory available.	Erase unwanted documents and documents with errors from memory to increase the amount of available memory.
# 081	
A password is not set in the remote machine.	Check the password of the remote machine, and try again.
# 099	
Sending was interrupted.	Try sending again.
# 102	
The subaddress and/or password do not match.	Check the subaddress and/or password of the remote machine, and try again.
# 107	
The document could not be sent because there was insufficient memory available.	1. Resend the document in a lower resolution. 2. Erase unwanted documents to make memory available. 3. If this problem occurs frequently, contact your local authorized Canon dealer.
# 701	
The specified Department ID does not exist, or the password has changed.	Enter the correct Department ID or password using 0-9 (numeric keys) on the control panel, and try sending again.
# 702	
The document could not be sent because the memory is full.	1. Wait a few moments, and try again after the other send jobs are complete. 2. Do not send the document to too many recipients at the same time. Send the document to a smaller number of recipients each time.
# 703	

Cause	Remedy
The memory for the image data is full.	1. Wait a few moments, and try again after the other send jobs are complete. 2. Erase documents stored in inboxes. If the machine still does not operate normally, turn the main power OFF, and then back ON again.
# 704	
An error occurred while reading address information from the Address Book.	Check the address settings. If the machine still does not operate normally, turn the main power OFF, and then back ON again.
# 705	
The send operation was interrupted because the size of the image data is larger than the Maximum Data Size for Sending set in E-mail/I-Fax Settings in Communications Settings in System Settings (from the Additional Functions screen).	Change the Maximum Data Size for Sending setting in E-mail/I-Fax Settings in Communications Settings in System Settings (from the Additional Functions screen). Select a lower resolution, or if you are using I-fax, decrease the number of pages containing images that you are sending each time, so that you do not exceed the Maximum Data Size for Sending limit.
# 706	
The Address Book is being imported or exported from the Remote UI, or it is being used by another sending component.	Wait until the Address Book import/export function from the Remote UI or the other sending component is complete, and try sending again.
# 711	
The inbox memory is full.	Erase the unnecessary documents stored in the inbox.
# 712	
The maximum number of documents is already stored in the inbox.	Erase the unnecessary documents stored in the inbox.
# 751	

Cause	Remedy
The server is not functioning. The network is down (the server is unable to connect to the network or was disconnected).	Check the recipient's address. Check that the network is up.
# 752	
The SMTP server name for e-mail or I-fax is not correct, or the server is not functioning. The domain name or e-mail address may not be set. The network is down.	Check the SMTP Server name and E-mail Address in E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen). Check that the SMTP server is operating properly. Check the network status.
# 753	
A TCP/IP error occurred while sending an e-mail message. (Socket, Select error, etc.)	Check the network cables and connectors. If the machine still does not operate normally, turn the main power OFF, and then back ON again.
# 754	
The server is not functioning or the network is down. The destination setting is not correct.	Check the server and network. Check the destination's address settings.
# 755	
You cannot send jobs because TCP/IP is not functioning correctly.	Check TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).
The IP address is not set.	Check TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).
When the machine was turned ON, an IP address was not assigned to the machine by the DHCP, RARP, or BOOTP server.	Check TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).
# 756	
NetWare in NetWare Settings in Network Settings in System Settings (from the Additional Functions screen) is set to 'Off'.	Turn NetWare to 'On'.

Cause	Remedy
# 801	
A timeout error occurred while the machine was communicating with the SMTP server to send an e-mail message or send/receive an I-fax.	1. Check that the SMTP server is functioning normally. 2. Check the network status.
The SMTP server returned an error while trying to connect. The destination is not correct. An error occurred on the server side during transmission to a file server.	1. Check that the SMTP server is functioning normally. 2. Check the network status. 3. Check the destination setting. 4. Check the status and setting of the file server.
You are sending a file to a destination to which you have no write permission.	Check the destination setting.
When the machine tried to send a file to the server, a file with the same name already exists on the FTP server and that file cannot be overwritten.	Change the setting on the file server to enable the file to be overwritten.
When the machine tried to send a file to the server, either the folder name is incorrectly specified or the password is incorrect.	Check the destination setting.
# 802	
The name of the SMTP Server in E-mail/I-Fax settings in Network Settings in System Settings (from the Additional Functions screen) is incorrect. The DNS server name in DNS Server Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen) is incorrect. Connection to the DNS server failed.	Check the name of the SMTP Server in E-mail/ I-Fax and DNS Server Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen). Check that the DNS server is functioning normally.
# 803	
The connection was interrupted due to reasons on the recipient's side before all of the pages could be sent.	Try sending again.
# 804	
Unable to match the specified directory name when sending data to a file server.	Check the destination.

Cause	Remedy
You have no permission to access the folder.	Change the setting on the server to enable access to the folder.
# 806	
An incorrect user name or password was specified for the sending of a file to a file server.	Change the user name or password.
An incorrect destination was specified for the sending of an e-mail message or I-fax.	Check the e-mail or I-fax address.
# 810	
A POP (Post Office Protocol) server connection error occurred while receiving an I-fax.	Check the POP Server name in E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen). Confirm that the POP server is functioning normally. Check the network status.
The POP server returned an error during the connection.	Check the POP Server name in E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen). Confirm that the POP server is functioning normally. Check the network status.
A timeout error occurred on the server while connecting to the POP server.	Check the POP Server name in E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen). Confirm that the POP server is functioning normally. Check the network status.
# 815	
You cannot log on to the file server because the machine is printing a document sent to that server. Simultaneous connections are not possible.	Wait for a few moments before trying to send the data again, or change the NetWare server to which you are sending your documents. Alternatively, stop the Pserver.
# 818	
The received data is not in a printable file format.	Ask the sender to change the file format and resend the data.

Cause	Remedy
# 819	
You have received data that cannot be processed (MIME information is incorrect).	Check the settings, and ask the sender to resend the data.
# 820	
You have received data that cannot be processed (BASE 64 or uuencode is incorrect).	Check the settings, and ask the sender to resend the data.
# 821	
You have received data that cannot be processed (TIFF analysis error).	Check the settings, and ask the sender to resend the data.
# 822	
You have received data that cannot be processed (image data cannot be decoded).	Check the settings, and ask the sender to resend the data.
# 827	
You have received data that cannot be processed (contains MIME information that is not supported).	Check the settings, and ask the sender to resend the data.
# 828	
You have received HTML data.	Ask the sender to use a file format other than HTML, and resend the data.
# 829	
Data that contains more than 1,000 pages is received.	This machine can print or store up to 999 pages of data in memory, but will delete any data that exceeds this limit. Ask the sender to resend the remaining pages.
# 830	

Cause	Remedy
A DSN (Delivery Status Notification) error notification is received because of an incorrect I-fax address or destination setting, or the data size of the sent documents exceeds the mail server capacity.	1. Check the I-fax address or destination setting. 2. Set Maximum Data Size for Sending in E-mail/I-Fax Settings in Communication Settings in System Settings (from the Additional Functions screen) so that it is less than the mail server capability. 3. Check the status of the mail server, DNS server, and network.
# 831	
An I-fax document could not be received using SMTP because of the RX/Print Range setting in IP Address Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).	Reset the RX/Print Range setting in IP Address Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).
# 832	
DSN (Delivery Status Notification) mail was not sent because TCP/IP Settings or E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen) have not been set, or trouble has occurred in the mail server.	1. Check the DNS Server Settings and IP Address Settings in TCP/IP Settings, and E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen). 2. Check the status of the mail server and DNS server.
# 833	
MDN (Mail Delivery Notification) mail was not sent because TCP/IP Settings or E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen) have not been set, or trouble has occurred in the mail server.	1. Check the DNS Server Settings and IP Address Settings in TCP/IP Settings, and E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen). 2. Check the status of the mail server and DNS server.
# 834	
An MDN error notification is received because of an incorrect I-fax address or destination setting, or trouble has occurred in the network or mail server. Alternatively, the memory of the receiving machine is full.	Check the I-fax address and destination settings.

Cause	Remedy
# 835	
The maximum number of text lines for receiving an I-fax has been exceeded.	Ask the sender to reduce the amount of text data in the body of the document, and resend the data.
# 837	
A connection request was received from a host whose connection is restricted by IP Address Settings, which can be set in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen).	Check the settings in IP Address Settings in TCP/IP Settings in Network Settings in System Settings (from the Additional Functions screen). Make sure that the connection request is made from an authorized host.
# 839	
The user name or password for the SMTP authentication (SMTP AUTH) in Authent./ Encryption in E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen) is incorrect.	Check the user name and password for SMTP Authentication (SMTP AUTH) in Authent./ Encryption in E-mail/I-Fax in Network Settings in System Settings (from the Additional Functions screen).
# 841	
The encryption algorithm that matches the mail server does not exist for sending e-mail or I-fax.	1. Set Allow SSL in Network Settings in System Settings (from the Additional Functions screen) to 'Off'. 2. Add the same encryption algorithm as the mail server in the mail server settings.
# 842	
Authentication using the client certificate was requested by the mail server for sending e-mail or I-fax.	1. Set Allow SSL in Network Settings in System Settings (from the Additional Functions screen) to 'Off'. 2. Change the mail server settings so that the client certificate is not requested.
# 843	
There is large difference between the current time set in the KDC (Key Distribution Center) server and the one set in the machine.	1. Change the current date and time in Date & Time Settings in Timer Settings (from the Additional Functions screen). 2. Change the current time set in the KDC (Key Distribution Center) server.

Cause	Remedy
# 851	
There is insufficient memory remaining in the system.	Check the system's available memory, and delete unwanted documents in the inboxes.
The scanned document cannot be stored because there are more than 100 documents in the specified inbox.	Delete unnecessary documents from the specified inbox.
# 852	
An error occurred because the main power switch was turned OFF while a job was being processed.	Check to see if the main power switch is turned ON. Try processing the job again, if necessary.
# 899	
The e-mail message or I-fax has been successfully sent, but reception may be incomplete because the transmission was relayed via multiple servers.	1. Confirm whether reception was complete. 2. Check if you received an error notification.
# 995	
Reserved communication jobs were cleared.	Reserve the jobs again, if necessary.

14.3 Error Code Details

14.3.1 Error Code Description

The machine is equipped with a self diagnostic mechanism which runs a check on the machine (particularly, on sensor output) at such times as programmed in advance, indicating the nature of any error it may have come across.
The following is a compilation of error codes, with descriptions of how they are identified and possible causes.

14.3.2 E000

T-14-4

Code	Detail	Cause/Particulars of detection	Remarks
E000		At power-on, the rise in the temperature of the fixing assembly is not high enough. The main thermistor (THM1, THM2, THM3), thermal switch (TP1, TP2, TP3), or heater (H1, H2, H3, H4) has an open circuit or poor contact. The AC drive PCB or the DC controller PCB is faulty.	
	0010	After power-on, the temperature does not reach 50 deg C within 300 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0011	The temperature reaches 50 deg C, but does not reach 80 deg C within 300 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0012	The temperature reaches 80 deg C, but does not reach 110 deg C within 300 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0013	The temperature reaches 110 deg C, but does not reach 140 deg C within 300 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

Code	Detail	Cause/Particulars of detection	Remarks
	0014	The temperature reaches 140 deg C, but does not reach 170 deg C within 300 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0015	The temperature reaches 170 deg c, but does not reach 200 deg C within 300 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0020	After power-on, the temperature does not reach 50 deg C within 180 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0021	The temperature reaches 50 deg C, but does not reach 80 deg C within 180 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0022	The temperature reaches 80 deg C, but does not reach 110 deg C within 180 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0023	The temperature reaches 110 deg C, but doest not reach 140 deg C within 180 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0024	The temperature reaches 140 deg C, but does not reach 170 deg C within 180 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0025	The temperature reaches 170 deg C, but does not reach 200 deg C within 180 sec. If the outside heating roller is in contact, within 400 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0026	The temperature reaches 200 deg C, but does not reach 230 deg C within 180 sec. If the outside heating roller is in contact, within 400 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

Code	Detail	Cause/Particulars of detection	Remarks
	0030	After power-on, the temperature does not reach 50 deg C within 420 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0031	The temperature reaches 50 deg C, but does not reach 80 C deg in 420 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0032	The temperature reaches 80 deg C, but does not reach 110 deg C within 420 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0033	The temperature reaches 110 deg C, but does not reach 140 deg C within 420 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0034	The temperature reaches 140 deg C, but does not reach 170 deg C within 420 sec.	Check for an open circuit and poor contact in the main thermistor, thermal switch, and heater; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.3 E001

T-14-5

Code	Detail	Cause/Particulars of detection	Remarks
E001		The rise in the temperature of the fixing assembly is excessive. There is an open circuit or poor contact in the following: main thermistor (THM1, THM2, THM3), sub thermistor (THM4, THM5, THM6), or heater (H1, H2, H3, H4). The AC driver PCB or the DC controller PCB is faulty.	
	0001	The rise in the temperature of the fixing roller is excessive.	Check the main thermistor, sub thermistor, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

Code	**Detail**	**Cause/Particulars of detection**	**Remarks**
	0002	The rise in the temperature of the outside heating roller is excessive.	Check the main thermistor, sub thermistor, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0003	The rise in the temperature of the pressure roller is excessive.	Check the main thermistor, sub thermistor, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.4 E002

T-14-6

Code	**Detail**	**Cause/Particulars of detection**	**Remarks**
E002		The rise in the temperature of the fixing assembly is not enough. There is an open circuit or poor contact in the main thermistor (THM1, THM2, THM3), thermal switch (TP1, TP2, TP3), or heater (H1, H2, H3, H4). The AC driver PCB or the DC controller PCB has a fault.	
	0010	The temperature of the fixing roller reaches 80 deg C, but drops below 50 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0020	The temperature of the outside heating roller reaches 80 deg C, but drops below 50 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0030	The temperature of the pressure roller reaches 80 deg C, but drops below 50 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.5 E003

T-14-7

Code	Detail	Cause/Particulars of detection	Remarks
E003		After standby, the drop in the temperature of the fixing assembly is excessive. There is an open circuit or poor contact in the main thermistor (THM1, THM2, THM3), thermal switch (TP1, TP2, TP3), or heater (H1, H2, H3, H4). The AC driver PCB or the DC controller PCB has a fault.	
	0041	During standby, the temperature of the fixing roller drops below 150 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0042	During standby, the temperature of the outside heating roller drops below 190 dg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0043	During standby, the temperature of the pressure roller drops below 120 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0051	During copying, the temperature of the fixing roller drops below 150 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0052	During copying, the temperature of the outside heating roller drops below 190 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0053	During copying, the temperature of the pressure roller drops below 60 deg C.	Check the main thermistor, thermal switch, and heater for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.6 E004

T-14-8

Code	Detail	Cause/Particulars of detection	Remarks
E004		There is an error in the fixing assembly protection circuit. There is an open circuit or poor contact in the main thermistor (THM1, THM2, THM3) or sub thermistor (TH4, THM5, THM6). The AC driver PCB or the DC controller PCB has a fault.	
	0001	There is an SSR error in the outside heating roller heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0002	There is an SSR error in the fixing sub heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0003	There is an SSR error in the outside heating roller heater or the fixing sub heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0004	There is an SSR error in the fixing main heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0005	There is an SSR error in the outside heating roller heater or the fixing main heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0006	There is an SSR error in the fixing sub heater or the fixing main heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

Code	Detail	Cause/Particulars of detection	Remarks
	0007	There is an SSR error in the outside heating roller heater, fixing sub heater, or fixing main heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0008	There is an SSR error in the pressure heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0009	There is an SSR error in the outside heating roller heater or the contact heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	000A	There is an SSR error in the fixing sub heater or the contact heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	000B	There is an SSR error in the outside heating roller heater, fixing sub heater, or contact heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	000C	There is an error in the fixing main heater or the contact heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	000D	There is an SSR error in the outside heating roller heater, fixing main heater, or contact heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	000E	There is an error in the fixing sub heater, fixing main heater, or contact heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

Code	Detail	Cause/Particulars of detection	Remarks
	000F	There is an SSR error in the outside heating roller heater, fixing sub heater, fixing main heater, or contact heater.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0010	The fixing roller thermistor has an open circuit.	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0020	The outside heating roller thermistor has an open circuit. the main thermistor and the sub thermistor for an open circuit	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0030	The outside heating roller thermistor has an open circuit. the main thermistor and the sub thermistor for an open circuit	Check the main thermistor and the sub thermistor for an open circuit and poor contact; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.7 E005

T-14-9

Code	Detail	Cause/Particulars of detection	Remarks
E005		There is an error in the take-up mechanism of the web.	
	0000	The web of the fixing assembly has been fully taken up. After the web sensor has detected an off state, the count has exceeded 3000. The web length sensor (PS20) is faulty. The DC controller PCB is faulty.	Reset in service mode: COPIER>FUNCTION>CLEAR>ERR. If you have replaced the web, reset the reading in the following, and turn off and then on the power: COPIER>COUNTER>DRBL-1>FIX-WEB.
	0010	The drive solenoid of the fixing assembly is not connected.	Check the drive solenoid of the fixing web for disconnection; then, reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.8 E006

T-14-10

Code	Detail	Cause/Particulars of detection	Remarks
E006		The fixing assembly has a comparison error.	
	0001	The fixing drawer has been identified as being disconnected.	Check the connector of the drive solenoid of the fixing web; then, turn off and then on the main power.

14.3.9 E008

T-14-11

Code	Detail	Cause/Particulars of detection	Remarks
E008		There is an error in relation to the life of the fixing assembly.	
	0001	The counter reading for the fixing roller has exceeded a specific count.	At time of replacing the roller, reset by executing the following in service mode: COPIER>COUNTER>DRBL-1>FX-UP-RL; thereafter, turn off and then back on the main power.

14.3.10 E009

T-14-12

Code	Detail	Cause/Particulars of detection	Remarks
E009		There is an outside heating roller shift error. The outside heating roller shift motor (M22) is faulty. The outside heating roller HP sensor (PS21) is faulty. The DC controller PCB is faulty.	

Code	Detail	Cause/Particulars of detection	Remarks
	00FF	The outside heating roller remains in contact with the fixing roller.	Check the outside heating roller shift motor and the fixing motor; then, turn off and then on the main power.

14.3.11 E012

T-14-13

Code	Detail	Cause/Particulars of detection	Remarks
E012		There is an error in the drum/ITB motor.	
	0001	After motor start-up, a lock state is not identified for 1 sec or more.	Check the area around the photosensitive drum and the intermediate transfer belt; then, turn off and then on the main power.

14.3.12 E013

T-14-14

Code	Detail	Cause/Particulars of detection	Remarks
E013		There is clogging by waste toner.	
	0001	There is a waste toner full error. The waste toner inside the toner box (result of software conversion) is 90% or more of the capacity of the toner box (7100 cc), i.e., the soft counter reading is 250000 or higher.	Check the amount of waste toner; thereafter, turn the main power off and then back on. If you have replaced (cleaned) the waste toner box, be sure to reset the counter using the following service mode item: COPIER>COUNTER>MISC>WST-TNR; thereafter, turn the main power off and then back on.

Code	Detail	Cause/Particulars of detection	Remarks
	0002	There is a waste toner feedscrew error. The output of the waste toner lock detecting switch (SW14) is '1'for more than 1 sec.	Check the developing motor and the amount of waste toner; thereafter, turn the main power off and then back on. If you have replaced (cleaned) the waste toner box, reset the counter using the following service mode: COPIER>COUNTER>MISC>WST-TNR; thereafter, clean the waste toner feed pipe and turn the main power off and then back on.

14.3.13 E014

T-14-15

Code	Detail	Cause/Particulars of detection	Remarks
E014		There is a fixing motor error.	
	0001	After motor start-up, a lock state is not identified for 1 sec or more.	Check the fixing motor (fixing assembly); then, turn off and then on the main power.

14.3.14 E020

T-14-16

Code	Detail	Cause/Particulars of detection	Remarks
E020		There is an ATR error.	
		xx=01 for Y; xx=02 for M; xx=03 for C; xx=04 for without color distinction	

Code	Detail	Cause/Particulars of detection	Remarks
	xx10	For INIT control (service mode INISET-*) at time of initial setup, the Sig value is lower than 62. The ATR sensor is damage or has an open circuit. The connector may have poor contact. The intermediate transfer belt may be soiled.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xx11	For INIT control (service mode INISET-*) at time of initial setup, the Sig value is lower than 62. The ATR sensor is damaged or has an open circuit. The connector may have poor contact. The intermediate transfer belt may be soiled>	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xx12	For INIT control (service mode INISET-*) at time of initial setup, the Sig value is 960 or higher. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The opening/closing of the shutter is faulty. The intermediate transfer belt is soiled.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xx13	For INIT control (service mode INISET-*) at time of initial setup, the Sig value is lower than 62. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The intermediate transfer belt is soiled.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xx81	When the background (intermediate transfer belt) is read during patch detection, the P_base_adj value is lower than 255. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The ITB cleaner is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xx90	The result (Sig D) of computation based on the reading of the patch during patch detection (analog)) is lower than 16.	Turn off and then on the main power; then, execute the intermediate transfer belt.

Code	Detail	Cause/Particulars of detection	Remarks
	xx91	The result (Sig D) of computation based on the reading of the patch during patch detection (analog) is 1008 or higher. The patch sensor is damaged or has an open circuit. The connector has poor contact. The primary transfer pressure is faulty. The mounting of the developing assembly is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xx92	The value delta D obtained from the result (Sig D) of computation based on the reading of the patch during patch detection is -5.0% or more 3 times continuously. The patch sensor may be damaged or has an open circuit. The connector has poor contact. The primary transfer engagement is faulty. The mounting of the developing assembly is faulty. The amount of supply is low.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xx93	The value delta D obtained from the result (Sig D) of computation based on the reading of the patch during patch detection is +5.0% or lower 3 times continuously. The patch sensor is damaged or has an open circuit. The connector has poor contact. The primary transfer pressure is faulty. The mounting of the developing assembly is faulty. The amount of supply is low.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxA0	For ATR control, the Sig value is lower than 62. The ATR sensor is damaged or has an open circuit. The connector has poor contact.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxA1	For ATR control, the Ref value is lower than 62. The ATR sensor is damaged or has an open circuit. The connector has poor contact.	Turn off and then on the main power; then, execute the intermediate transfer belt.

Code	Detail	Cause/Particulars of detection	Remarks
	xxA2	For ATR control, the Sig value is 960 or higher. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The opening/closing of the shutter is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxA3	For ATR control, the Ref value is 960 or higher. The ATR sensor is damaged or has an open circuit. The connector has poor contact.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxA8	The T/D ratio identified for ATR control has exceeded the upper limit (12%) 3 times continuously. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The amount of supply is too high.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxA9	The T/D ratio identified for ATR control has exceeded the lower limit (3%) 3 times continuously. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The amount of supply is too low.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxC0	The variation among the 8 samplings of the light Sig value is 100 or higher. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The stirring of toner is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxC1	The variation among the 8 samplings of the light Ref value is 100 or higher. The ATR sensor is damaged or has an open circuit. The connector has poor contact.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxC2	The variation among the 8 samplings of the patch Sig value is 400 or higher. The patch sensor is damaged or has an open circuit. The connector has poor contact. The primary transfer engagement is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.

Code	Detail	Cause/Particulars of detection	Remarks
	xxD0	For INIT control (service mode INISET-*) at time of initial setup, the average of the light Sig values is 200 or lower. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The amount of supply is low.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxD1	For INIT control (service mode INISET-*) at time of initial setup, the average of the light Ref values is 462 or lower. The ATR sensor is damaged or has an open circuit. The connector has poor contact.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxD2	Fore INIT control (service mode INISET-*) at time of initial setup, the average of the patch Sig values is 200 or lower. The patch sensor is damaged or has an open circuit. the connector has poor contact. The primary transfer engagement is faulty. The mounting of the developing assembly is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxD4	For INTI control (service mode INISET-*) at time of initial setup, the average of the light Sig values is 800 or higher. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The amount of supply is too high.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxD5	For INTI control (service mode INISET-*) at time of initial setup, the average of the light Ref values is 562 or higher. The ATR sensor is damaged or has an open circuit. The connector has poor contact.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxDA	For INIT control (service mode INISET-*) at time of initial setup, the variation among the 72 night Sig value samplings is 100 or more. The ATR sensor is damaged or has an open circuit. The connector has poor contact. The stirring of toner is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.

Code	Detail	Cause/Particulars of detection	Remarks
	xxDB	For INIT control (service mode INISET-*) at time of initial setup, the variation among the 72 light Ref samplings is 100 or more. The ATR sensor is damaged or has an open circuit. The connector has poor contact.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxDC	For INIT control (service mode INISET-*), the average of the patch Sig values is 800 or higher. The patch sensor is damaged or has an open circuit. The connector has poor contact. the primary transfer engagement if faulty. The mounting of the developing assembly is faulty. The amount of supply is too high.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxF1	The connector or the color toner supply clutch is not connected.	Turn off and then on the main power; then, execute the intermediate transfer belt.
	xxFF	There is no toner inside the Bk developing assembly. - the toner is not supplied to the developing assembly correctly. - the hopper stirring motor is not rotating normally. The hopper connector has poor contact. The black toner supply motor (M25) is faulty. The hopper stirring motor (M23) is faulty. The black toner level sensor is faulty. The DC controller is faulty.	Turn off and then on the main power; then, execute the intermediate transfer belt.

14.3.15 E021

T-14-17

Code	Detail	Cause/Particulars of detection	Remarks
E021		There is an error in the rotation of the developing assembly.	

Code	Detail	Cause/Particulars of detection	Remarks
	0001	The developing rotary home position is not detected. The motor rotates out of sync because of poor torque caused by any of the following: The developing rotary HP sensor is faulty; the wiring of the DC controller is faulty; there is an excess load on the developing assembly.	Turn off and then on the main power.
	0002	The length of the flag detected during rotation is longer or shorter than the designed flag. The motor rotates out of sync because of poor torque caused by any of the following: the developing rotary HP sensor is faulty; the wiring of the DC controller PCB is faulty; there is an excessive load on the developing assembly.	Turn off and then on the main power.

14.3.16 E023

T-14-18

Code	Detail	Cause/Particulars of detection	Remarks
E023		The developing motor (M23) does not rotate normally.	
	0001	After motor start-up, a lock state is not detected for 1 sec or more.	Turn off and then on the main power.

14.3.17 E025

T-14-19

Code	Detail	Cause/Particulars of detection	Remarks
E025		There is an over-current in the toner feed motor or the cartridge motor.	

Code	**Detail**	**Cause/Particulars of detection**	**Remarks**
	0001	There is an overcurrent in the hopper stirring motor (M23).	Turn off and then on the main power.
	0002	There is an over-current in the black toner supply motor (M25).	Turn off and then on the main power.
	0410	The connector of the black toner supply motor (M25) is identified as being disconnected.	Turn off and then on the main power.

14.3.18 E032

T-14-20

Code	**Detail**	**Cause/Particulars of detection**	**Remarks**
E032		The NE connector counter does not operate.	
	0001	There is an open circuit in the line for the count pulse signal.	Turn off the main power, and check the cable for an open circuit; then, turn on the main power.

14.3.19 E043

T-14-21

Code	**Detail**	**Cause/Particulars of detection**	**Remarks**
E043		There is an error in the 3.5K paper deck pickup motor, causing an error signal.	
	0001	After motor start-up, a lock state is not detected for 1 sec or more. The mechanical load such as on the feeding system is excessive.	Turn off and then on the main power.

14.3.20 E051

T-14-22

Code	Detail	Cause/Particulars of detection	Remarks
E051		The horizontal registration home position is not detected within a specific period of time. The horizontal registration position is faulty (0003).	
	0001	The horizontal registration home position is not detected within a specific period of time.	Turn off and then on the main power.
	0002	The ON edge of the SUS plate is not detected during a search for home position.	Turn off and then on the main power.
	0003	The logical motor position differs between before and after the detection operation.	Turn off and then on the main power.

14.3.21 E061

T-14-23

Code	Detail	Cause/Particulars of detection	Remarks
E061		At time of potential control, a specific level of potential is absent. Or, the limiter goes on.	
	0001	When forming an image, the potential is 10 V or less during initial rotation.	Turn off and then on the main power.
	0002	At time of potential control, the potential is 10 V or less during initial rotation.	Turn off and then on the main power.
	0003	While the grid bias is being adjusted, a level of potential higher than the grid bias is sampled.	Turn off and then on the main power.
	0005	The difference in potential between dark and light areas is less than 100 V.	Turn off and then on the main power.
	0007	During adjustment of EPC offset, the potential that is read is outside the +/-30 V range.	Turn off and then on the main power.

Code	Detail	Cause/Particulars of detection	Remarks
	0008	During dark area potential adjustment, the sampling value is too low.	Turn off and then on the main power.
	0010	The sampling of the light area potential is faulty.	Turn off and then on the main power.

14.3.22 E070

T-14-24

Code	Detail	Cause/Particulars of detection	Remarks
E070		There is an error in the detection of the ITB home position. xx=01: HP1, xx=02: HP2; only at ITB 1/1 speed; XX=00: no distinction	
	00XX	The home position of the intermediate transfer belt is not detected within a specific period of time (4 sec). The ITB HP sensor is faulty.	Turn off the main power, and check the DC controller PCB and the ITB HP sensor; then, turn on the main power.
	01XX	The period of time between when the home position of the intermediate transfer belt is detected and the next home position is detected is longer than specified (standard period +5%). The presence of a tear may have caused the sensor to wrongly identify it as indicating the home position.	Turn off the main power, and check the drive of the intermediate transfer belt; then, turn on the main power.
	02XX	The period of time between when the home position of the intermediate transfer belt is detected and when the next home position is detected is shorter than specified (standard time -5%). The intermediate transfer belt slips on the drive roller, causing a delay in the timing at which the home position is detected.	Turn off the main power, and check the surface of the intermediate transfer belt for a tear; then, turn on the main power.

Code	Detail	Cause/Particulars of detection	Remarks
	03XX	The detection of the home position of the intermediate transfer belt has failed once. ITB HP1 and ITB HP2 must occur alternately; however, the same state has been detected continuously.	Turn off the main power, and check the DC controller PCB and the ITB HP sensor; then turn on the main power.

14.3.23 E073

T-14-25

Code	Detail	Cause/Particulars of detection	Remarks
E073		With the front door closed, the transfer drawer connector or the transfer frame drawer connector is not connected.	
	0001	The result of detecting the feed unit indicates the absence of the unit.	Turn off and then on the main power.

14.3.24 E077

T-14-26

Code	Detail	Cause/Particulars of detection	Remarks
E077		The home position of the secondary transfer roller (engagement) is not detected.	
	0001	The HP sensor does not go on within 5 sec after the start of a HP search.	Turn off and then on the main power.

14.3.25 E078

T-14-27

Code	Detail	Cause/Particulars of detection	Remarks
E078		The home position of the transfer belt cleaner unit (engagement) is not detected.	
	0001	The HP sensor does not go on within 5 sec after the start of a HP search.	Turn off and then on the main power.

14.3.26 E079

T-14-28

Code	Detail	Cause/Particulars of detection	Remarks
E079		The home position of the outside heating roller (engagement) is not detected. The outside heating roller (engagement) home position sensor does not go off.	
	0001	The HP sensor does not go on within 5 sec after the start of an HP search.	Turn off and then on the main power.
	0002	If there is an open circuit in the home position sensor of the outside heating roller (engagement) home position sensor, the state of the sensor will be identified as being ON. An error will be identified if the sensor fails to go off when it is at a point where it must normally go on and the outside heating roller shift motor is driven.	Turn off and then on the main power.

14.3.27 E100

T-14-29

Code	Detail	Cause/Particulars of detection	Remarks
E100		The BD is not detected.	
	0001	The BD signal is not detected when the polygon scanner has been driven for a specific period of time.	Turn off the main power, and check the DC controller PCB and the 24V system fuse; then, turn on the main power.
	0002	The BD signal is not detected white the polygon scanner is rotating stably.	Turn off the main power, and check the DC controller PCB and the 24V system fuse; then, turn on the main power.

14.3.28 E110

T-14-30

Code	Detail	Cause/Particulars of detection	Remarks
E110		There is a scanner motor error.	
	0001	The FG signal is not detected within a specific period of time after the polygon scanner has been driven.	Turn off the main power, and check the DC controller PCB and the 24V system fuse; then, turn on the main power.
	0002	The FG signal is not detected within a specific period of time after the polygon scanner has been driven. (the interval from when the motor starts to rotate and VLock=H is more than a specific length of time)	Turn off the main power, and check the DC controller PCB and the 24V system fuse; then, turn on the main power.
	0003	The FG signal is not detected white the polygon scanner is rotating stably. (VLock goes off when VLock=H and PLock=L)	Turn off the main power, and check the DC controller PCB and the 24V system fuse; then, turn on the main power.

14.3.29 E197

T-14-31

Code	detail	Cause/Particulars of detection	Remarks
E197		There is an error in the communication with the fixing feed PCB.	
	0002	In the course of initializing communication between the DC controller and the fixing/feeding unit, as many as 10 communication errors occur continuously.	Turn off the main power, and check the DC controller PCB wiring and the 24V system fuse; then, turn on the main power.
	0003	Following the end of initialization of the communication between the DC controller and the fixing/feeding unit, as many as 10 communication errors occur continuously.	Turn off the main power, and check the DC controller PCB wiring and the 24V system fuse; then, turn on the main power.
	0004	At the start of drum initial multiple rotation, there is no signal indicating the start of 24V in the fixing assembly in the communication between the DC controller and the fixing/feeding unit.	Turn off the main power, and check the DC controller PCB wiring and the 24V system fuse; then, turn on the main power.

14.3.30 E202

T-14-32

Code	Detail	Cause/Particulars of detection	Remarks
E202		There is an HP error.	
	0001	An error is found during the forward trip of the HP search. The scanner HP sensor is faulty. The scanner motor is faulty. The reader controller is faulty.	Check the harness connector for connection; then, as necessary, replace the faulty part.

Code	Detail	Cause/Particulars of detection	Remarks
	0002	An error is found during the return trip of the HP search. The scanner HP sensor is faulty. The scanner motor is faulty. The reader controller PCB is faulty.	Check the harness connector for connection; then, as necessary, replace the faulty part.

14.3.31 E225

T-14-33

Code	Detail	Cause/Particulars of detection	Remarks
E225		The lamp has blown.	
	0001	The level of shading is lower than specified.	Check the harness connector for connection. Check the scanning lamp (xenon), inverter, and reader controller PCB.

14.3.32 E227

T-14-34

Code	Detail	Cause/Particulars of detection	Remarks
E227		There is a power supply (24V) error.	
	0001	At power-on, the 24V port is off.	Check the power supply harness connector for connection; then, as necessary, replace the power supply.
	0002	At the start of a job, the 24V port is off.	Check the power supply harness connector for connection; then, as necessary, replace the power supply.
	0003	At the end of a job, the 24V port is off.	Check the power supply harness connector for connection; then, as necessary, replace the power supply.

Code	Detail	Cause/Particulars of detection	Remarks
	0004	While a load is being driven, the 24V port is off.	Check the power supply harness connector for connection; then, as necessary, replace the power supply.

14.3.33 E240

T-14-35

Code	Detail	Cause/Particulars of detection	Remarks
E240		There is a DDI-P communication error.	
	0000	There is a DDI-P communication error (error in communication between master and slave 0).	Turn off the main power, and check the wiring of the DC controller PCB and the 24V system fuse; then, turn on the main power.

14.3.34 E248

T-14-36

Code	Detail	Cause/Particulars of detection	Remarks
E248		There is an error in the EEPROM.	
	0000	At time of start-up, a check error has occurred on the SRAM board.	Turn off the main power, and check the SRAM board; then, as necessary, replace the SRAM board, and turn on the main power.
	0001	There is a power-on error.	Replace the reader controller PCB.
	0002	There is a write error.	Replace the reader controller PCB.
	0003	There is a wire/read error.	Replace the reader controller PCB.

14.3.35 E351

T-14-37

Code	Detail	Cause/Particulars of detection	Remarks
E351		There is an error in the main controller PCB (sub).	
	0000	At start-up, there is an error in the communication between main controller PCB (sub) and the main controller PCB (main).	Turn off the main power, and replace the main controller PCB (sub). If the result is not good, replace the main controller PCB (main), and turn on the main power.

14.3.36 E400

T-14-38

Code	Detail	Cause/Particulars of detection	Remarks
E400		There is a DF communication error.	
	0001	There is a check sum error.	Disconnect and connect the harness connector; then, replace the reader controller PCB or the ADF DC controller.
	0002	There is a reception status error.	Disconnect and connect the harness connector; then, replace the reader controller PCB or the ADF DC controller.
	0003	There is a reception interrupt error.	Disconnect and connect the harness connector; then, replace the reader controller PCB or the ADF DC controller.

14.3.37 E413

T-14-39

Code	Detail	Cause/Particulars of detection	Remarks
E413		There is an error in the DF shift motor.	
	0001	The shift HP sensor is open.	Check the harness; then, as necessary, replace the sensor and motor. Check the mounting of the parts around the cam.
	0002	The shift HP sensor is closed.	Check the harness; then, as necessary, replace the sensor and motor. Check the mounting of the parts around the cam.

14.3.38 E490

T-14-40

Code	Detail	Cause/Particulars of detection	Remarks
E490		The DF is of the wrong model.	
	0001	The installed DF is not of the correct type.	Replace the DF with one of an appropriate type.

14.3.39 E500

T-14-41

Code	Detail	Cause/Particulars of detection	Remarks
E500		There is a finisher communication error.	
	0001	There is an error in data communication. An error has been detected in terms of the number of errors or the duration of the error in the communication between copier and finisher.	Turn off the main power, and check the DC controller, wiring of the finisher PCB, and 24V system fuse; then, turn on the main power.

14.3.40 E503

T-14-42

Code	Detail	Cause/Particulars of detection	Remarks
E503		There is an error in the communication within the finisher (finisher R1/R2).	
	0002	finisher-to-saddle unit communication error	Check the connection between the saddle stitcher controller PCB and the finisher controller PCB.
	0003	finisher-to-punch unit communication error	Check the connection between the Punch controller PCB and the finisher controller PCB.

14.3.41 E505

T-14-43

Code	Detail	Cause/Particulars of detection	Remarks
E505		There is an error in the backup memory of the finisher (finer R1/R2).	
	0001	Indicates that there is an error in the check sum of the EEPROM on the finisher controller PCB at time of power-on.	Turn off the main power, and check the DC control, wiring of the finisher PCB, and 24V system fuse; then, turn on the main power.
	0002	Indicates that there is an error in the check sum of the EEPROM on the puncher driver PCB at time of power-on.	Turn off the main power, and check the wiring of the DC controller PCB and the puncher controller PCB: then, check the 24V system fuse, and turn back on the main power.

14.3.42 E514

T-14-44

Code	Detail	Cause/Particulars of detection	Remarks
E514		There is an error in the trailing edge assist motor (finisher R1/R2).	
	8001	The home position sensor does not go off when the trailing edge assist motor has been rotated for a specific period of time.	1) Check the trailing edge assist home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the trailing edge assist motor. Is the wiring normal? 3) Check the trailing edge assist mechanism. Is there a fault? 4) Try replacing the trailing edge assist motor. Is the problem corrected?
	8002	The home position sensor does not go on when the trailing edge assist motor has been rotated for a specific period of time.	1) Check the trailing edge assist home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the trailing edge assist motor. Is the wiring normal? 3) Check the trailing edge assist mechanism. Is there a fault? 4) Try replacing the trailing edge assist motor. Is the problem corrected?

14.3.43 E519

T-14-45

Code	Detail	Cause/Particulars of detection	Remarks
E519		There is an error in the gear change motor (finisher R1/R2).	

Code	Detail	Cause/Particulars of detection	Remarks
	8001	The home position sensor does not go off within a specific period of time after the gear change motor has started to rotate.	1) Check the gear change home position sensor. Is the sensor normal? 2) Check the wiring between the fisher controller PCB and the gear change motor. Is the wiring normal? 3) Check the gear change mechanism. Is there a fault? 4) Try replacing the gear change motor. Is the problem corrected?
	0002	The home position sensor does not go on within a specific period of time after the gear change motor has started to rotate.	1) Check the gear change home position sensor. Is the sensor normal? 2) Check the wiring between the fisher controller PCB and the gear change motor. Is the wiring normal? 3) Check the gear change mechanism. Is there a fault? 4) Try replacing the gear change motor. Is the problem corrected?

14.3.44 E530

T-14-46

Code	Detail	Cause/Particulars of detection	Remarks
E530		There is an error in front alignment (finisher R1/R2).	
	8001	Th alignment motor has started to rotate.e home position sensor does not go off within a specific period of time after the front	1) Check the pre-aligning plate home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the pre-aligning plate motor. Is the wiring normal? 3) Check the path of the aligning plate. Is there a mechanical obstacle? 4) Try replacing the pre-aligning plate motor. Is the problem corrected?

Code	Detail	Cause/Particulars of detection	Remarks
	8002	The home position sensor does not go on within a specific period of time after the front alignment motor has started to rotate.	1) Check the pre-aligning plate home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the pre-aligning plate motor. Is the wiring normal? 3) Check the path of the aligning plate. Is there a mechanical obstacle? 4) Try replacing the pre-aligning plate motor. Is the problem corrected?

14.3.45 E531

T-14-47

Code	Detail	Cause/Particulars of detection	Remarks
E531		There is an error in stapling (finisher R1/R2).	
	0001	The home position sensor does not go off within a specific period of time after the stapler motor has started to rotate.	1) Check the wiring between the finisher controller PCB and the stapler. Is the wiring normal? 2) Try replacing the stapler. Is the problem corrected?
	0002	The home position sensor does not go on within a specific period of time after the stapler motor has started to rotate.	1) Check the wiring between the finisher controller PCB and the stapler. Is the wiring normal? 2) Try replacing the stapler. Is the problem corrected?

14.3.46 E532

T-14-48

Code	Detail	Cause/Particulars of detection	Remarks
E532		There is an error in the shift mechanism of the stapler. (finisher R1/R2)	

Code	Detail	Cause/Particulars of detection	Remarks
	8001	The home position sensor does not go off within a specific period of time after the stapler shift motor has started to rotate.	1) Check the stapler shift home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the stapler shift motor. Is the wiring normal? 3) Check the path of the stapler shift base. Is there a mechanical obstacle? 4) Try replacing the stapler shift motor. Is the problem corrected?
	8002	The home position sensor does not go on within a specific period of time after the stapler shift motor has started to rotate.	1) Check the stapler shift home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the stapler shift motor. Is the wiring normal? 3) Check the path of the stapler shift base. Is there a mechanical obstacle? 4) Try replacing the stapler shift motor. Is the problem corrected?

14.3.47 E535

T-14-49

Code	Detail	Cause/Particulars of detection	Remarks
E535		There is an error in the staple swing mechanism. (finisher R1/R2)	
	8001	The home position sensor does not go off even when the swing motor has rotated for a specific period of time.	1) Check the swing home position sensor. Is the sensor normal? 2) Check the writing between the finisher controller PCB and the swing motor. Is the wiring normal? 3) Check the swing mechanism. Is there a fault? 4) Try replacing the swing motor. Is the problem corrected?

Code	Detail	Cause/Particulars of detection	Remarks
	8002	The home position sensor does not go on even when the swing motor has rotated for a specific period of time.	1) Check the swing home position sensor. Is the sensor normal? 2) Check the writing between the finisher controller PCB and the swing motor. Is the wiring normal? 3) Check the swing mechanism. Is there a fault? 4) Try replacing the swing motor. Is the problem corrected?
	0003	There is an error in relation to an hazardous area.	1) Check the swing home position sensor. Is the sensor normal? 2) Check the writing between the finisher controller PCB and the swing motor. Is the wiring normal? 3) Check the swing mechanism. Is there a fault? 4) Try replacing the swing motor. Is the problem corrected?

14.3.48 E537

T-14-50

Code	Detail	Cause/Particulars of detection	Remarks
E537		rear alignment error (Finisher-R1/R2)	
	8001	The home position sensor does not go off even when the swing motor has rotated for a specific period of time.	1) Check the post-aligning plate home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the post-aligning plate motor. Is the wiring normal? 3) Check the path of the aligning plate. Is there a mechanical obstacle? 4) Try replacing the post-aligning plate motor. Is the problem corrected?

Code	Detail	Cause/Particulars of detection	Remarks
	8002	The home position sensor does not go on even when the swing motor has rotated for a specific period of time.	1) Check the post-aligning plate home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the post-aligning plate motor. Is the wiring normal? 3) Check the path of the aligning plate. Is there a mechanical obstacle? 4) Try replacing the post-aligning plate motor. Is the problem corrected?

14.3.49 E540

T-14-51

Code	Detail	Cause/Particulars of detection	Remarks
E540		upper tray ascent/descent error (Finisher-R1/R2)	
	8001	upper tray ascent/descent motor clock error	1) Check the No. 1 tray area sensors 1 through 3. Are the sensors normal? 2) Check the wiring between finisher controller PCB and the No. 1 tray shift motor. Is the wiring normal? 3) Is there a fault in the ascent/descent mechanism of the tray? 4) Try replacing the No. 1 tray shift motor. Is the problem corrected?
	8002	area error	1) Check the No. 1 tray area sensors 1 through 3. Are the sensors normal? 2) Check the wiring between finisher controller PCB and the No. 1 tray shift motor. Is the wiring normal? 3) Is there a fault in the ascent/descent mechanism of the tray? 4) Try replacing the No. 1 tray shift motor. Is the problem corrected?

Code	Detail	Cause/Particulars of detection	Remarks
	8003	safety switch activation	1) Check the No. 1 tray area sensors 1 through 3. Are the sensors normal? 2) Check the wiring between finisher controller PCB and the No. 1 tray shift motor. Is the wiring normal? 3) Is there a fault in the ascent/descent mechanism of the tray? 4) Try replacing the No. 1 tray shift motor. Is the problem corrected?

14.3.50 E542

T-14-52

Code	Detail	Cause/Particulars of detection	Remarks
E542		lower tray ascent/descent error (Finisher-R1/R2)	
	8001	lower tray ascent/descent motor clock error	1) Check the No. 2 tray sensors 1 through 3. Are the sensors normal? 2) Check the wiring between the finer controller PCB and the No. 2 tray shift motor. Is the wiring normal? 3) Is there a fault in the tray ascent/descent mechanism? 4) Try replacing the No. 2 tray shift motor. Is the problem corrected?
	8002	area error	1) Check the No. 2 tray sensors 1 through 3. Are the sensors normal? 2) Check the wiring between the finer controller PCB and the No. 2 tray shift motor. Is the wiring normal? 3) Is there a fault in the tray ascent/descent mechanism? 4) Try replacing the No. 2 tray shift motor. Is the problem corrected?

Code	Detail	Cause/Particulars of detection	Remarks
	0003	safety switch activation	1) Check the No. 2 tray sensors 1 through 3. Are the sensors normal? 2) Check the wiring between the finer controller PCB and the No. 2 tray shift motor. Is the wiring normal? 3) Is there a fault in the tray ascent/descent mechanism? 4) Try replacing the No. 2 tray shift motor. Is the problem corrected?

14.3.51 E584

T-14-53

Code	Detail	Cause/Particulars of detection	Remarks
E584		shutter unit error (Finisher-R1/R2)	
	8001	The shutter open sensor does not go off (i.e., the shutter is not closed).	1) Check the shutter home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the stack edging motor and between the finisher controller PCB and the shutter open/close clutch. Is the wiring normal? 3) Is there a fault in the shutter mechanism? 4) Try replacing the stack edging motor or the shutter open/close clutch. Is the problem corrected?

Code	Detail	Cause/Particulars of detection	Remarks
	0002	The shutter open/closed sensor does not go on (i.e., the shutter does not open).	1) Check the shutter home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the stack edging motor and between the finisher controller PCB and the shutter open/close clutch. Is the wiring normal? 3) Is there a fault in the shutter mechanism? 4) Try replacing the stack edging motor or the shutter open/close clutch. Is the problem corrected?
	0003	hazardous area	1) Check the shutter home position sensor. Is the sensor normal? 2) Check the wiring between the finisher controller PCB and the stack edging motor and between the finisher controller PCB and the shutter open/close clutch. Is the wiring normal? 3) Is there a fault in the shutter mechanism? 4) Try replacing the stack edging motor or the shutter open/close clutch. Is the problem corrected?

14.3.52 E590

T-14-54

Code	Detail	Cause/Particulars of detection	Remarks
E590		There is an error in the punch motor. (punch unit)	
	8001	The punching home position sensor is not detected when the punch motor has been driven for 200 msec.	Check the punch home position sensor, horizontal registration motor, and punch driver PCB; then, turn off and then on the main power.

Code	Detail	Cause/Particulars of detection	Remarks
	8002	The puncher does not detect the punching home position after the motor has stopped (initial operation).	Check the punch home position sensor, horizontal registration motor, and punch driver PCB; then, turn off and then on the main power.

14.3.53 E591

T-14-55

Code	Detail	Cause/Particulars of detection	Remarks
E591		There is an error in the punch dust sensor. (punch unit)	
	8001	There is an error in the light-receiving voltage at time of light emission.	Turn off and then on the main power.
	8002	There is an error in the light-receiving voltage without emission of light.	Turn off and then on the main power.

14.3.54 E592

T-14-56

Code	Detail	Cause/Particulars of detection	Remarks
E592		There is an error in the punch horizontal registration sensor. (punch unit)	
	8001	There is an error in the light-receiving voltage at time of light emission. (trailing edge sensor)	Turn off and then on the main power.
	8002	There is an error in the light-receiving voltage without emission of light. (trailing edge sensor)	Turn off and then on the main power.
	8003	There is an error in the light-receiving voltage with emission of light. (horizontal registration sensor 1)	Turn off and then on the main power.

Code	Detail	Cause/Particulars of detection	Remarks
	8004	There is an error in the light-receiving voltage without emission of light. (horizontal registration sensor 1)	Turn off and then on the main power.
	8005	There is an error in the light-receiving voltage with emission of light. (horizontal registration sensor 2)	Turn off and then on the main power.
	8006	There is an error in the light-receiving voltage without emission of light. (horizontal registration sensor 2)	Turn off and then on the main power.
	8007	There is an error in the light-receiving voltage it the presence of emission of light. (horizontal registration sensor 3)	Turn off and then on the main power.
	8008	There is an error in the light-receiving voltage without emission of light. (horizontal registration sensor 3)	Turn off and then on the main power.
	8009	There is an error in the light-receiving voltage with emission of light. (horizontal registration sensor 4)	Turn off and then on the main power.
	800A	There is an error in the light-receiving voltage without emission of light. (horizontal registration sensor 4)	Turn off and then on the main power.

14.3.55 E593

T-14-57

Code	Detail	Cause/Particulars of detection	Remarks
E593		There is an error in the punch shift motor. (punch unit)	
	8001	The light-receiving voltage HP sensor does not go off at time of light emission.	Turn off and then on the main power.
	8002	The light-receiving voltage HP sensor doest not go on without emission of light.	Turn off and then on the main power.

14.3.56 E5F0

T-14-58

Code	Detail	Cause/Particulars of detection	Remarks
E5F0		There is an error in saddle paper positioning.	
	0001	The paper positioning plate home position sensor does not go on when the paper positioning plate motor has been driven for 1.33 sec. The paper positioning plate motor (M4S) or the paper positioning plate home position sensor (PI7S) is faulty.	Check the paper positioning plate motor (M4S) /paper positioning plate home position sensor (PI7S).
	0002	The paper positioning plate home position sensor does not go off when the paper positioning plate motor has been driven for 1 sec. The paper positioning plate motor (M4S) or the paper positioning plate home position sensor (PI7S) is faulty.	Check the paper positioning plate motor (M4S) /paper positioning plate home position sensor (PI7S).

14.3.57 E5F1

T-14-59

Code	Detail	Cause/Particulars of detection	Remarks
E5F1		There is an error in saddle paper folding.	
	0001	The number of detection pulses of the paper folding motor clock sensor is lower than specified.	Check the paper folding motor (M2S) /paper folding motor clock sensor (PI4S).
	0002	The state of the paper folding home position sensor does not change when the paper folding motor has been driven for 3 sec.	Check the paper folding motor (M2S) /paper folding motor clock sensor (PI4S).

14.3.58 E5F2

T-14-60

Code	**Detail**	**Cause/Particulars of detection**	**Remarks**
E5F2		There is an error in the saddle guide.	
	0001	The guide home position sensor does not go on when the guide motor has been driven for 0.45 sec. The guide motor (M3S) or the guide home position sensor (PI3S) is faulty.	Check the guide motor (M3S) /guide home position sensor (PI13S).
	0002	The guide home position sensor doest not go off when the guide motor has been driven for 1 sec. The guide motor (M3S) or the guide home position sensor (PI3S) is faulty.	Check the guide motor (M3S) /guide home position sensor (PI13S).

14.3.59 E5F3

T-14-61

Code	**Detail**	**Cause/Particulars of detection**	**Remarks**
E5F3		There is an error in saddle alignment.	
	0001	The aligning plate home position sensors does not go on when the alignment motor has been driven for 05. sec (during initialization, 1.67 sec).	Check the alignment motor (M5S) /aligning plate home position sensor (PI5S).
	0002	The alignment plate home position sensor does not go off when the alignment motor has been driven for 1 sec.	Check the alignment motor (M5S) /aligning plate home position sensor (PI5S).

14.3.60 E5F4

T-14-62

Code	Det ail	Cause/Particulars of detection	Remarks
E5F4		There is an error in saddle rear sampling.	
	0001	The stitching home position sensor does not go on when the stapler motor (rear) is rotated in reverse for 0.5 sec or more.	Check he stitching motor (rear; M6S) /stitching home position sensor (rear; MS5S).
	0002	The stitching home position sensor does not go off when the switch motor (rear) is reverse for 0.5 sec or more.	Check he stitching motor (rear; M6S) /stitching home position sensor (rear; MS5S).

14.3.61 E5F5

T-14-63

Code	Detail	Cause/Particulars of detection	Remarks
E5F5		There is an error in saddle front stapling.	
	0001	The stitching home position sensor does not go on when the switch motor (front) is rotated in reverse for 0.5 sec or more.	Check the stitching motor (front; M7S) / stitching home position sensor (front; MS7S).
	0002	The stitching home position sensor does not go off when the switch motor (front) is rotated in normal direction for 0.5.	Check the stitching motor (front; M7S) / stitching home position sensor (front; MS7S).

14.3.62 E5F6

T-14-64

Code	Detail	Cause/Particulars of detection	Remarks
E5F6		There is an error in saddle butting.	
	8001	The paper pushing plate home position sensor does not go on when the paper pushing motor has been driven for 0.3 sec or more.	The paper pushing plate motor (M8S) or the paper pushing plate home position sensor (PI4) is faulty.
	8002	The paper pushing plate home position sensor does not go off when paper pushing plate motor has been driven for 80 msec or more.	The paper pushing plate motor (M8S) or the paper pushing plate home position sensor (PI4S) is faulty.
	8003	The number of detection pulses of the paper pushing plate motor clock sensor drops below a specific number.	The paper pushing plate motor (M8S) or the paper pushing plate motor clock sensor (PI1S) is faulty.
	8004	The paper pushing plate sensor does not go off when the paper pushing plate motor has been driven for 80 msec or more.	The paper pushing plate motor (M8S) or the paper pushing plate leading edge position sensor (PI15S) is faulty.
	8005	The paper pushing plate leading edge position sensor does not go on when the paper pushing plate motor has been driven for 0.3 sec or more.	The paper pushing plate motor (M8S) or the paper pushing plate leading edge position sensor (PI5S) is faulty.

14.3.63 E5F8

T-14-65

Code	Detail	Cause/Particulars of detection	Remarks
E5F8		There is an error in the saddle connector.	

Code	Detail	Cause/Particulars of detection	Remarks
	0001	The connector of the guide home position sensor is identified as being disconnected.	Check the connectors of the guide home position sensor (PI13S). Check the connectors of the paper pushing plate home position sensor (PI4S).
	0002	The connector of the paper pushing plate home position sensor is identified as being disconnected.	Check the connectors of the paper pushing plate leading edge position sensor (PI5S).
	0003	The connector of the paper pushing plate leading edge position sensor is identified as being disconnected.	Check the connectors of the paper pushing plate leading edge position sensor (PI5S).

14.3.64 E5F9

T-14-66

Code	Detail	Cause/Particulars of detection	Remarks
E5F9		There is an error in the saddle switch.	
	0001	With any of the following sensor is identifying its respective cover a being closed, the inlet cover switch is identified as being open for 1 sec or more after the start of the initial rotation of the machine or the start of printing: - inlet cover sensor (PI9S) - front cover open/closed sensor (PI2S) - delivery cover sensor (PI3S) Or, the front cover switch (MS2S) or the delivery cover switch (MS3S) is open.	Check the inlet cover switch (MS1S)/front cover switch (MS2S)/delivery cover switch (MS3S).

Code	Detail	Cause/Particulars of detection	Remarks
	0002	With any of the following sensor is identifying its respective cover as being closed, the front cove switch is identified as being open for 1 sec or more after the start of the initial rotation of the machine or the start of printing: - inlet cover sensor (PI9S) - front cover open/closed sensor (PI2S) - delivery cove sensor (PI3S)	Check the front cover switch (MS2S)/delivery cover switch (MS3S).
	0003	With any of the following sensors identifying its respective cover as being closed, the delivery cover switch is identified as being open for 1 sec or more after the start of the initial rotation of the machine or the start of printing: - inlet cover sensor (PI9S) - front cover open/closed sensor (PI2S) - delivery cover sensor (PI3S)	Check the delivery cover switch (MS3S).

14.3.65 E602

T-14-67

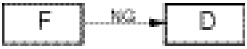
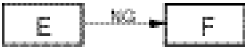
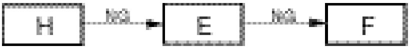
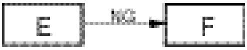
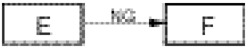
Code	Detail	Cause/Particulars of detection	Remarks
E602		There is a hard disk error.	

14.3.66 E602 in Detail

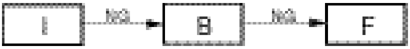
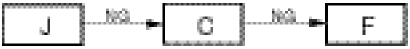
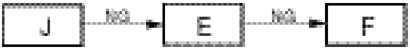
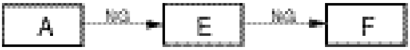
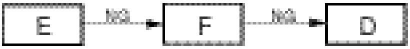
If the machine indicates 'E602-xxyy', take the appropriate action according to the instructions indicated by the detail code.

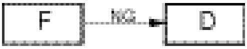
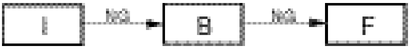
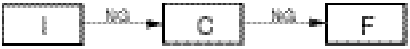
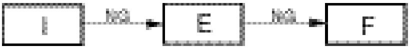
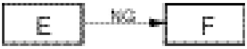
⚠ If **'E602-xxyy'** is indicated, be sure always to turn off and then on the main power (so that auto recovery sequence is executed).

T-14-68

xx	Partition	yy	Description
00	HDD full	01	The machine cannot recognize the HDD. The machine cannot find BOOTDEV at time of start-up.
			Remedy: Turn off the main power, and check the connection of the 2 cables from the HDD (power, SIDE); then, turn on the main power. At that time, check to see if the HDD rotates and power is supplied. 
		02	The machine cannot find the system software or the main controller (main PCB) in BOOTDEV.
			Remedy: 
		03	The machine detects a faulty sector while it is reading data from BOOTDEV.
			Remedy: 
		06	The machine cannot find the system software for the main controller (sub) CPU in BOOTDEV.
			Remedy: 
		07	The machine cannot find appropriate ICCProfile in BOOTDEV/PDLDEV.
			Remedy: 

T-14-69

xx	Partition	yy	Description
01	DOSDEV	01,02	There is a read error or a file system error at time of start-up. Remedy:  - if xxyy = 0701, 0702, Remedy: Ask the user to collect address book data, transfer settings, and user mode data using the remote UI.  - if xxyy = 0801, 0802, Remedy:  - if xxyy = FF01, FF02, Remedy: 
02	FSTDEV		
03	DOSDEV2		
04	FSTPDEV		
05	DOSDEV3		
06	PDLDEV		
07	DOSDEV4		
08	BOOTDEV		
09	DOSDEV5		
FF	NOT TO SPECIFY IMPOSSIBLE TO SPECIFY		
		03	There is an HDD contact fault or an opening system error. Remedy: Turn off the main power, and check the connection of the 2 cables (power, IDE) from the HDD; then, turn on the main power. At that time, check to see if the HDD is rotating and power is supplied. 

xx	Partition	yy	Description
		11,21	There is an HDD contact faulty. Remedy: Turn off the main power, and check the connection of the 2 cables (power, IDE) from the HDD; then, turn on the main power. At that time, check to see if the HDD rotates and power is supplied. 
		13,25	There is a read error. Remedy:  - if xxyy = 0713, 0725, Remedy:  - if xxyy= 0813, 0825, Remedy: 
		10,12,14, 22,23,24	There is a system error or a packet data error. Remedy: 

A:

1) Set '0' to the following: COPIER>FUNCTION>SYSTEM>CHK-TYPE.
2) Make the following selections, and press the OK key: COPIER>FUNCTION>SYSTEM>HD-CHECK*.
3) When the execution is over, turn off and then on the main power.

B:

1) While referring to "Formatting the HDD", enter the appropriate CHK-TYPE for the following: COPIER>FUNCTION>SYSTEM.
2) Make the following selections, and press the OK key:

COPIER>FUNCTION>SYSTEM>HD-CLEAR.

3) When execution is over, turn off and then on the main power.

C:

1) ** Start up the machine in normal mode (i.e., by turning on the main power while pressing the 1 and 7 keys); then, make the following selections, and press the OK key: COPIER>FUNCTION>SYSTEM>DOWNLOAD.
2) Execute DOSDEV4 using the Service Support Tool.
3) When the execution is over, turn off and then on the main power.

D:

1) Replace the main controller (main) board.
2) Move the image memory (SDRAM) and the boot ROM from the old board to the new board.

E:

1) ** Start up the machine in safe mode (i.e., by turning on the main power while pressing the 2 and 8 keys).
2) Execute HDD formatting (ALL) and download the system software (SYSTEM, LANG, RUI) using the Service Support Tool.
3) When the execution is over, turn off and then on the main power.

F:

1) ** Replace the HDD, and start up the machine in safe mode (i.e., by turning on the main power while pressing the 2 and 8 keys).
2) Execute HDD formatting (ALL) and download the system software (SYSTEM, LANG, RUI) using the Service Support Tool.
3) When the execution is over, turn off and then on the main power.

G:

1) Set '1' to the following: COPIER>FUNCTION>SYSTEM>CHK-TYPE.
2) Make the following selections, and press the OK key: COPIER>FUNCTION>SYSTEM>HD-CLEAR.
3) When the execution is over, turn off and then on the main power.

H:

1) Turn off the main power, and turn on the power while pressing the 1 and 9 keys so that the machine will automatically start its recovery program* and turns its control panel solid black.
2) When the execution is over (i.e., when the screen is solid white), turn off and then on the main power.

⚠ If the machine does not start its recovery program in response to the foregoing operation, go to E.

I:

1) By referring to "Formatting the HDD," enter the appropriate CHK-TYPE in the following: COPIER>FUNCTION>SYSTEM.
2) Make the following selections, and press the OK key.
3) When the execution is over, turn off and then on the main power.

J:

1) Enter '4' to the following: COPIER>FUNCTION>SYSTEM>CHK-TYPE.
2) Make the following selections, and press the OK key: COPIER>FUNCTION>SYSTEM>HD-CHECK (1 to 5 min).
3) When the execution is over, turn off and then on the main power.

*Takes about 30 to 50 min.

**As necessary, ask the user to collect the address book data, transfer settings, and user mode data before starting the work.

T-14-70

▪ **Formatting the HDD**

Partition	**CHK-TYPE**	**Typical data that will be deleted**
DOSDEV	1	all that relate to images (i.e., reservation, box, fax) mode memory, routine task button
FSTDEV	1	
DOSDEV2	1	
FSTPDEV	1	
DOSDEV3	2	PDL spool
PDLDEV	3	PDL-related file (front, registration form, ICCProfile)
DOSDEV4	4	user data (address book, transfer settings); system software
BOOTDEV	4	
DOSDEV5	5	-
not specified	0	-

14.3.67 E604

T-14-71

Code	Detail	Cause/Particulars of detection	Remarks
E604		There is a shortage of image memory (SDRAM).	
	0000	The amount of memory required by the model in question is not recognized.	Set it to the size of memory suited to the model in question.

14.3.68 E609

T-14-72

Code	details	Cause/Particulars of detection	Remarks
E609		E609 (Samsung HDD-related error code)	
	0008	The HDD does not increase to a specific temperature level within a specific time when the power is turned on.	Replace the HDD.
	0009	The HDD does not increase to a specific temperature level in relation to a sleep state.	Turn off and then on the power. If the return operation fails, replace the HDD.

14.3.69 E674

T-14-73

Code	Detail	Cause/Particulars of detection	Remarks
E674		There is an error in the fax board.	

	0001	The fax board is detected, but communication is not possible.	Turn off the main power, and check the fax board and the main controller PCB; then, turn on the main power. If the machine fails to reset, replaced the fax board or the main controller PCB.

14.3.70 E677

T-14-74

Code	Detail	Cause/Particulars of detection	Remarks
E677		There is an external controller error.	
	0003	An error has been detected by a check on the configuration when the external controller is being started up.	Turn off the main power, and check the cable; then, turn on the main power. If the machine fails to start up, re-install the system software of the external controller.
	0010	A controller for a non-Canon machine is connected.	Turn off the main power, and check to see if the controller is an appropriate type, and check the cable; then turn on the main power. If the machine fails to reset, re-install the system software of the external controller.
	0080	There is an error in the communication with the printer after the external controller has started up normally.	Turn off the main power, and check the cable; then, turn on the main power. If the machine fails to start up, re-install the system software of the external controller.

14.3.71 E710

T-14-75

Code	Detail	Cause/Particulars of detection	Remarks
E710		There is an error in IPC initialization.	
	0001	The machine fails to become ready within 3 sec after the IPC chip has started up.	Turn off the main power, and check the cable; then, turn on the main power.

14.3.72 E711

T-14-76

Code	Detail	Cause/Particulars of detection	Remarks
E711		There is an IPC communication error.	
	0002	An error has been detected 4 times or more within 1.5 sec after the communication has been interrupted between the finisher and the printer, and the machine does not reset.	Turn off the main power, and check the cable; then, turn on the main power. If the machine fails to reset, check the connector between the finisher and the copier for poor contact; as necessary, replace the finisher controller/DC controller.

14.3.73 E713

T-14-77

Code	Detail	Cause/Particulars of detection	Remarks
E713		There is a finisher communication error.	
	0001	There is an error in the IC used for communication by the sorter.	Turn off the main power switch, and check the wiring of the DC controller PCB and the finisher controller PCB, and check the 24V system fuse: then, turn on the main power switch. If the machine does not reset, replace the DC controller PCB/finisher controller PCB.

14.3.74 E717

T-14-78

Code	Detail	Cause/Particulars of detection	Remarks
E717		There is an error in the communication with the NE controller.	
	0001	The NE controller that was connected before the power is turned off is not recognized after the power is turned on.	Check the cable, and reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0002	An IPC open circuit or an IPC communication error is not reset.	Check the cable, and reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.75 E719

T-14-79

Code	Detail	Cause/Particulars of detection	Remarks
E719		There is an error in the communication with the coin vendor/card reader.	
	0001	The coin vendor that is connected before the power is turned off is not recognized when the paper is turned on.	Check the cable, and reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0002	- The IPC cable to the coin vendor is broken and the IPC communication cannot be recovered. - There is an open circuit in the pickup delivery signal line. - An improper connection is detected (short circuit between Tx and Rx of IPC).	Check the cable, and reset in service mode: COPIER>FUNCTION>CLEAR>ERR.
	0011	The card reader that is connected before the power is turned off is not recognized when the paper is turned on.	Check the cable, and reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

Code	Detail	Cause/Particulars of detection	Remarks
	0012	There is an IPC cable open circuit or an IPC communication error in relation to the card reader that cannot be reset.	Check the cable, and reset in service mode: COPIER>FUNCTION>CLEAR>ERR.

14.3.76 E730

T-14-80

Code	Detail	Cause/Particulars of detection	Remarks
E730		There is a PDL error.	
	1001	At the start of a job, an initialization error has occurred. There is a fault in the PDL software.	Perform PDL resetting, or turn off and then on the main power.
	100A	A system error (e.g., failed initialization) has occurred during job processing. The PDL software has a fault.	Perform PDL resetting, or turn off and then on the main power.
	100B	At start-up, a mismatch occurs between the version number indicated in the master font management file of /BOOTDEV and the bootable version. There is no master font management file in /BOOTDEV. There is an error in the PDL master font.	Perform PDL resetting, or turn off and then on the main power. If the machine fails to reset, re-install the font file or fully format and re-install the system software.
	9004	There is an error in the PAI communication with the external controller. There is an OPEN/IF communication error.	Turn off the main power, and check the open I/F board and the cable; then, turn on the main power. If the machine fails to reset, replace the external controller, open I/F PCB, or the main controller PCB.
	9005	There is an error it the connection of the video cable connected to the external controller.	Turn off the main power, and check the open I/F board and the cable; then turn on the main power. If the machine fails to reset, replace the eternal controller, open I/F PCB, or main controller PCB.

Code	Detail	Cause/Particulars of detection	Remarks
	A006	PDL does not response, subootable is out of order or does not exist. There is a PDL communication error.	Perform PDL resetting, or turn off the main power, and check the connector of the UFR board; then, turn on the main power. If the machine fails to reset, re-install the firmware or replace the main control PCB.
	A007	At time of start-up, a mismatch occurs between the version of the machine control software and the version of the PDL control software. The PDL version is wrong.	Perform PDL resetting, or turn off and then on the main power. If the machine fails to reset, fully format and re-install the system software.
	B013	The font data is found to be damaged at start-up. PDL There is an error in the built-in font.	If the error is not reset when the main power has been turned off and then on, perform full system formatting and installation sessions.

14.3.77 E731

T-14-81

Code	Detail	Cause/Particulars of detection	Remarks
E731		There is a UFR board error.	
	3000	There is a UFR board error. At start-up, the UFR board is not recognized.	Turn off the main power, and check the connection of the UFR board; then, turn on the main power. If the machine does not reset, replace the UFR board or the main controller PCB.
	3001	At start-up, initialization of the UFR fails.	Turn off the main power, and check the connection of the UFR board; then, turn on the main power. If the machine fails to ret, replace the UFR board or the main control PCB.

Code	Detail	Cause/Particulars of detection	Remarks
	3002	Initialization of Rambus fails.	Turn off the main power, and check the connection of the UFR board; then, turn on the main power. If the machine fails to ret, replace the UFR board or the main control PCB.
	3015	While a job is being processed, there is no video data in the chip of the main controller PCB (main) although the software is operating without a problem.	Turn off and then on the main power. If the machine fails to start up, replace the main controller PCB.

14.3.78 E732

T-14-82

Code	Detail	Cause/Particulars of detection	Remarks
E732		There is an error in reader communication.	
	0001	There is an error in reader communication.	Turn off the main power, and check the connectors to the reader, and check the power supply of the reader; then, turn on the main power.
	9999	Although a printer model, the machine is identified as a reader unit at start-up. (A copier model is started up as a printer model when the RAM is initialized.)	Turn off and then on the main power. (The indication on the machine is limited to "Turn On the Power.")

14.3.79 E733

T-14-83

Code	Detail	Cause/Particulars of detection	Remarks
E733		There is a printer communication error.	

0000	There is a printer communication error. At start-up, the printer is not detected.	Turn off the main power, and check the connectors to the DC controller PCB and the main controller PCB, and check the power supply of the printer; then, turn on the main power.
0001	There is a DDI-P communication error.	Turn off the main power, and check the connectors to the DC control PCB and the main controller PCB, and check the power supply of the printer; then, turn on the main power.

14.3.80 E740

T-14-84

Code	Detail	Cause/Particulars of detection	Remarks
E740		There is an Ethernet board error.	
	0002	At time of start-up, the MAC address is found to be illegal. A non-Canon MAC address is detected.	Turn off the main power, and replace the NIC; then, turn on the main power.

14.3.81 E743

T-14-85

Code	Detail	Cause/Particulars of detection	Remarks
E743		There is a DDI communication error.	
	0000	There is an SCI error. The reception data is faulty. A reception time-out condition has occurred. An SEQ time-out error has occurred. An SEQ time-out error has occurred.	Disconnect and connect the DDI-S cable connector; then, as necessary, replace the reader controller PCB or the main controller PCB.

14.3.82 E744

T-14-86

Code	Detail	Cause/Particulars of detection	Remarks
E744		There is a language file/boot ROM error.	
	0001	The version of the language file on the HDD is different from the version of bootable.	Using the Service Support Tool, download a language file of the correct version.
	0002	The size of the language file on the HDD is too large.	Using the Service Support Tool, download a language file of the correct version.
	0003	There is no language to use in Config.txt on the HDD. Or, none of the languages on the HDD is appropriate for use.	Download the appropriate language fields of the correct version using the Service Support Tool.
	0004	A switchover cannot be made to a language file on the HDD.	Using the Service Support Tool, download a language file of the correct version.
	1000	There is a boot ROM project error. The installed boot ROM is of the wrong type.	Turn off the main power, and replace the boot ROM with one of the correct type; then, turn on the main power.
	3000	There is a mismatch in respect of the version of the boot ROM module. The installed boot ROM dose not permit normal start-up operation.	Upgrade the boot ROM, or replace it.

14.3.83 E745

T-14-87

Code	Details	Description	Remedy
E745		TokenRing board error	
	0001	When initializing the TokeRing driver, the machine failed to initialize the PCI.	Turn off the main power, and check the connector of the TokenRing board; then, replace the TokenRing, and turn the main power back on.

Code	Details	Description	Remedy
	0002	When initializing the TokenRing driver, the machine found that the MAC address was faulty.	Turn off the main power, and replace the TokenRing board; then, turn the main power back on.
	0003	When initializing the TokeRing driver, the machine suffered an error in obtaining/ setting up the board information.	Turn off the main power, and replace the TokenRing board; then, turn the main power back on.
	0004	When starting up the TokeRing driver, the machine suffered a connection error.	Turn off the main power, and check the cable connection and the power supply of the MAU; then, turn the main power back on.

14.3.84 E746

T-14-88

Code	Detail	Cause/Particulars of detection	Remarks
E746		The accessories board is of the wrong type.	
	0003	At time of start-up, the UFR board is found to be of the wrong type. (A query is made to find out if the type is correct with reference to the engine ID.)	Replace it with a UFR board of the correct type.
	0004	At time of start-up, the scanner board is found to be of the wrong type. (A query is made to find out if the type is correct with reference to the engine ID.)	Replace it with a scanner board of the correct type.

14.3.85 E747

T-14-89

Code	Detail	Remedy
E747		image processing ASIC or memory control/communication control ASIC error

2029	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
2028	
2027	
2026	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
2121	
2120	
2119	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
2118	
2213	
2212	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
2211	
2210	
2006	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
2005	
3028	
3027	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
3026	
3025	
3120	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
3119	
3118	
3117	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
3212	
3211	

3210	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
3209	
3304	
3303	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
3302	
3301	
8728	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
8706	
8702	
8701	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
0919	
8406	
8402	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
8401	
PIU : 0231 PRCPIU : 0331	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0230 PRCPIU : 0330	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0229 PRCPIU : 0329	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0228 PRCPIU : 0328	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0227 PRCPIU : 0327	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.

PIU : 0226 PRCPIU : 0326	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0225 PRCPIU : 0325	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0224 PRCPIU : 0324	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0223 PRCPIU : 0323	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
PIU : 0222 PRCPIU : 0322	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
POU : 0531 SCCPOU : 0631 SFCPOU : 0831	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
POU : 0529 SCCPOU : 0629 SFCPOU : 0829	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
POU : 0528 SCCPOU : 0628 SFCPOU : 0828	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
POU : 0527 SCCPOU : 0627 SFCPOU : 0827	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
POU : 0526 SCCPOU : 0626 SFCPOU : 0826	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
0b31	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
0c31	
0c30	

0a31	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
0f31	
1131	
0131	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
0126	
0125	
00ee	1.turn off and then on the main power. 2.replace the SDRAM. 3.replace the main controller PCB.
00ff	

14.3.86 E800

T-14-90

Code	Detail	Cause/Particulars of detection	Remarks
E800		The interlock 24V mechanism of the fixing unit is identified as being off. With the door closed, the interlock 24V mechanism remains off for 500 msec.	
	0001		Turn off the main switch, and check the wiring of the DC controller PCB, check the fixing unit interlock, and check the 24V system fuse; then, turn on the interlock main switch.

14.3.87 E804

T-14-91

Code	Detail	Cause/Particulars of detection	Remarks
E804		There is any of the various types of fan errors.	
	0004	There is an error in the controller cooling fan.	Turn off the main switch, and check the wiring of the DC controller PCB and the 24V system fuse; then, turn on the main switch.

Code	Detail	Cause/Particulars of detection	Remarks
	0007	There is an error in the power supply cooling fan.	Turn off the main switch, and check the DC controller PCB and the 24V system fuse; then, turn on the main switch.

14.3.88 E805

T-14-92

Code	Detail	Cause/Particulars of detection	Remarks
E805		The fixing heat exhaust fan is identified as having stopped or having an error.	
	0003	There is an error in the fixing heat exhaust fan.	Turn off the main power, and check the supply of power to the fan; then, as necessary, replace the fan, and turn on the main power.

14.3.89 E820

T-14-93

Code	Detail	Cause/Particulars of detection	Remarks
E820		There is an error in the process unit cooling fan.	
	0002	There is an error in the process unit fan.	Turn off the main switch, and check the wiring of the DC controller PCB and the 24V system fuse; then, turn on the main switch.

14.3.90 E824

T-14-94

Code	Detail	Cause/Particulars of detection	Remarks
E824		There is an error in the primary charging suction/primary charging exhaust fan.	

Code	Detail	Cause/Particulars of detection	Remarks
	0000	There is an error in the primary charging suction mechanism.	Turn off the main power, and check the DC controller PCB and the 24V system fuse; then, turn on the main switch.
	0001	There is an error in the primary exhaust fan.	Turn off the main switch, and check the wiring of the DC controller PCB and 2V system fuse; then, turn on the main switch.

14.4 Jam Codes

14.4.1 Jam Code (printer unit)

Type of Jam Code

T-14-95

Code	Type of Jam Code
01xx	delay jam
02xx	stationary jam
0Axx	residual jam
0B00	door open jam
0B01	door open jam (detection by software)
0D91	size error (sheet shorter than specified)
0D92	material error (paper used instead of transparency
0D93	material (transparency used instead of paper)

Jam Code (printer unit)

T-14-96

Code	Sensor	Notation	Remarks
xx01	right deck pickup sensor	PS33	does not detect stationary jam
xx02	left deck pickup sensor	PS40	does not detect stationary jam
xx03	cassette 3 pickup sensor	PS48	does not detect stationary jam
xx04	cassette 4 pickup sensor	PS54	does not detect stationary jam
xx05	vertical path 4 sensor	PS63	
xx06	vertical path 3 sensor	PS62	
xx07	vertical path 2 sensor	PS61	
xx08	vertical path 1 sensor	PS60	
xx09	vertical path confluence sensor	PS32	

Code	Sensor	Notation	Remarks
xx10	vertical path 0 sensor	PS31	
xx0A	transparency sensor (front, rear)	PS3, PS29	other than in transparency mode
xx0A	registration sensor	PS9	in transparency mode
xx0B	post-transfer sensor	PS10	does not detect stationary jam
xx0C	internal delivery paper sensor	PS12	does not detect stationary jam
xx0D	reversal sensor	PS14	At Time of Face-Down Delivery
xx0E	external delivery sensor	PS13	
xx0F	reversal vertical path sensor	PS15	
xx11	duplex left sensor	PS17	
xx12	duplex confluence sensor	PS18	
xx13	side paper deck pickup sensor	PS101	does not detect stationary jam
xx14	side paper deck feed sensor	PS106	
xx15	fixing inlet sensor	PS11	detects residual jam only
xx16	left deck stationary sensor	PS47	detects residual jam only
0D91	transparency sensor (front/rear)	PS3, PS29	other than in transparency mode
0D91	registration sensor	PS9	in transparency mode
0D92	plain paper detected by transparency sensor when transparency is selected as medium	PS3, PS29	
0D93	transparency detected by transparency sensor when a medium other than transparency is selected	PS3, PS29	

14.4.2 Jam Code (finisher-related)

T-14-97

Code	Sensor	Notation
1011	delivery sensor feed delay jam	SR1(finisher-P1)
1101	delivery sensor feed stationary jam	
1500	stapler staple jam	

Code	Sensor	Notation
1300	power-on jam	
1400	door open jam	

T-14-98

Code	Sensor	Notation
1001	inlet path sensor feed delay jam	P13
1002	punch path sensor (punch registration sensor) feed delay jam	LED5/PTR5
1004	delivery path sensor feed delay jam	P14
1101	inlet path sensor feed stationary jam	P13
1102	punch path sensor (punch registration sensor) feed stationary jam	LED5/PTR5
1104	delivery path sensor feed stationary jam	P14
1200	timing jam	P13
1500	stapler staple jam	STP
1300	power-on jam	P13,P14
1400	door open jam	DOOR
1644	punch jam	LED5/PTR5
1645	punch power-on jam	LED5/PTR5
1791	saddle feed sensor feed delay jam	P18S,PI19S,PI20S
1792	saddle delivery sensor feed delay jam	PI11S
1793	saddle inlet sensor feed delay jam	PI22S
17A1	saddle feed sensor feed stationary jam	P18S,PI19S,PI20S
17A2	saddle delivery sensor feed stationary jam	PI11S,PI17S
17A3	saddle inlet sensor feed stationary jam	PI22S
1786	saddle stapler staple jam	S STP
1787	saddle power-on jam	PI11S,PI18S,PI19S,PI20S,PI22S
1788	saddle door open jam	DOOR

14.4.3 Jam Code (ADF-related)

T-14-99

Code	Sensor	Sensor	Description
0001	post-separation sensor	PI7	The post separation sensor does not detect paper even when paper has been fed 452 mm after the start of separation.
0002	post-separation sensor	PI7	- the separation sensor detects paper after paper has been fed 50 mm (if extra length, +200 mm) -45.5 mm following registration pickup. - the sensor goes on (paper with hole) before paper has been fed 12 mm after the detection of the trailing edge; the separation sensor detects paper after paper has been fed 50 mm from when the separation senor has gone on.
0003	registration sensor	PI1	the registration sensor does not detect paper even when paper has been fed 134.8 mm after the post-separation sensor has gone on.
0004	registration sensor	PI1	the read sensor goes off before the registration sensor goes off.
0005	read sensor	PI8	- the read sensor does not detect paper when paper has been fed 364.2 mm (182.1 x 2) after the point of registration. - the read sensor does not detect paper even when paper has been fed 157.4 mm (78.7 x 2) from the point of No. 2 registration.
0006	read sensor	PI8	- the read sensor detects paper when paper has been fed 500 mm (if extra length, +200 mm) from the start of feed following a temporary stop before reading. - in the course of LTRR/LGL identification in mix mode, the read sensor detects paper when paper has been fed 514 mm beginning at the advance edging standby position.
0007	delivery reversal sensor	PI9	- at time of switchback, the delivery sensor does not detect paper when paper has been fed 50 mm from the start of feed. - at time of switch-back, the delivery sensor does not detect paper after paper has been fed 50 mm from the start of feed.
0008	delivery reversal sensor	PI9	delivery reversal sensor the delivery sensor detects paper after paper has been fed 161.9 mm from the end of reading the trailing edge.
0042	post-separation sensor	PI7	a jam (1st sheet) is detected by the post-separation sensor.

Code	Sensor	Sensor	Description
0043	registration sensor	PI1	paper (1st sheet) fails to reach the registration sensor.
0044	registration sensor	PI1	a stationary jam (1st sheets) is detected by the registration sensor.
0045	read sensor	PI8	paper (1st sheet) fails to reach the read sensor.
0046	read sensor	PI8	a stationary jam (1st sheet) is detected by the read sensor.
0047	delivery reversal sensor	PI9	paper (1st sheet) fails to reach the delivery sensor.
0048	delivery reversal sensor	PI9	a stationary jam (1st sheet) is detected by the delivery sensor.
0071	timing fault	-	timing of software operation is faulty.
0073	timing fault	-	the shift motor has a fault.
0090	ADF open/closed sensor 1	PS502	the ADF is opened while the machine is in operation.
0091	ADF open/closed sensor 1	PS502	the ADF is opened while the machine is in operation (waiting for paper).
0092	DF cover open/ closed sensor	PI6	the cover is opened while the machine is in operation (drive system in operation).
0093	DF cover open/ closed sensor	PI6	the cover is opened while the machine is in operation (waiting for paper).
0094	registration sensor, separation sensor, feed sensor, delivery reversal sensor	PI1,PI7,PI8,PI9	paper is detected within the path during pickup of the 1st sheet.
0095	original placement sensor, DF cover open/closed sensor, ADF open/closed sensor 1	PI5,PI6,PS502	there is no paper in the tray, or the pickup start signal is received with the machine being in an open state.

14.5 Alarm Codes

14.5.1 Alarm Code

T-14-100

location code	detail code	
02 scanner system	0002	indicates soling of the glass in stream reading mode
	0020	line correction alarm (i.e., dust is detected on the stream reading glass during detection at the end of a job)
04 pickup/feed system	0001	cassette 1 lifter error
	0002	cassette 2 lifter sensor
	0003	cassette 3 lifter error
	0004	cassette 4 lifter error
	0008	optional deck lifter error
	0009	horizontal registration home position detection error
06 fixing system	0002	fixing upper roller end of life
09 drum	0005	History of work on drum phase shifting
11 waste toner collection system	0001	waste toner cassette full
32 potential control system	0001	potential control VD alarm
	0002	potential control VL alarm
33 fan	0001	delivery cooling fan 1 alarm
	0006	developing fan alarm
	0010	reader cooing fan alarm
	0011	fixing heat discharge fan alarm
	0012	primary charging suction fan alarm
	0013	primary charging exhaust fan alarm
	0014	feed fan 1 alarm
	0015	feed fan 2 alarm

location code	detail code	
50 ADF	0010	original separation alarm (1st original pickup fault) has occurred 3 times in succession.
	0007	Insufficient light intensity of the post-separation sensor
	0008	Insufficient light intensity of the read sensor
	0009	Insufficient light intensity of the delivery reversal sensor
	0010	The separation alarm is continuously given.
60 shift tray	0001	shift tray alarm
61 finisher	0001	staple absent
62 saddle stitcher	0001	staple absent
65 puncher	0001	punch waste paper case full
72 Surf	0007	Rendering error (LAM module)
	0008	Rendering error (MI module)

Chapter 15

Service Mode

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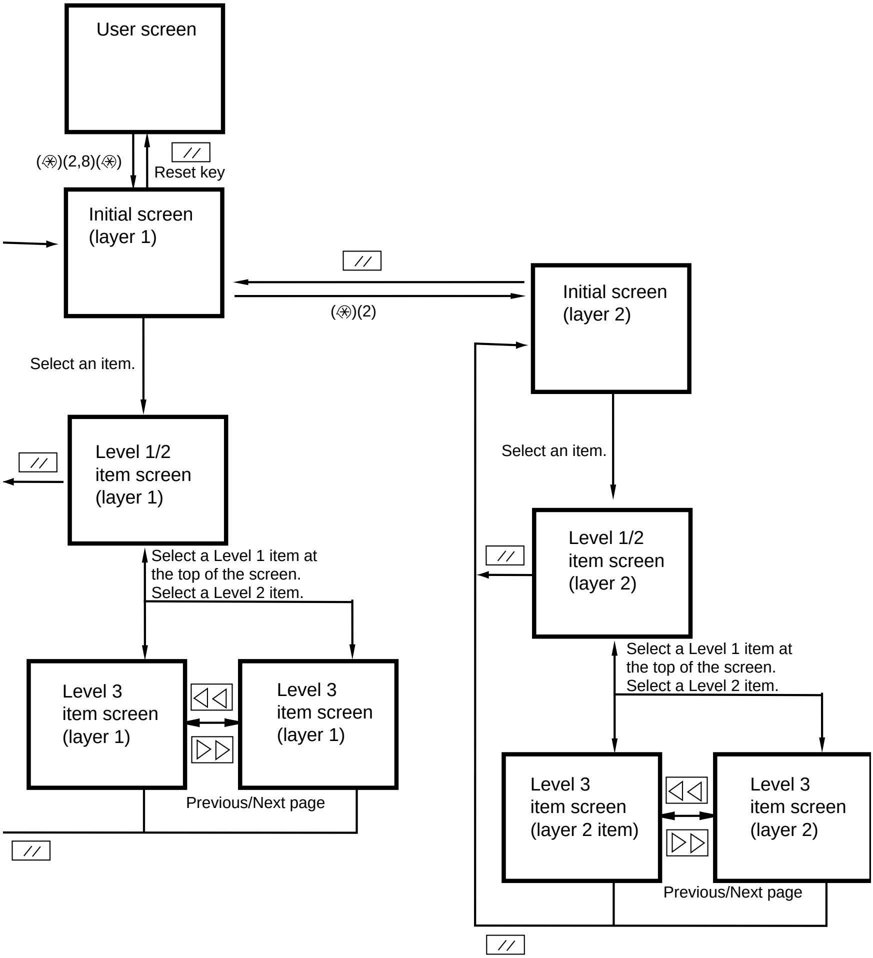
15.1 Outline

15.1.1 Construction of Service Mode

The machine's service mode has a 3-layer screen construction: Initial screen, Level 1/2 screen, and Level 3 screen. Its mode items are grouped into those used in regular maintenance work (Level 1 items) and those used in response to faults (Level 2 items).


User screen
(✲)(2,8)(✲)
Reset key
Initial screen (layer 1)
(✲)(2)
Initial screen (layer 2)
Select an item.
Level 1/2 item screen (layer 1)
Select an item.
Level 1/2 item screen (layer 2)
Select a Level 1 item at the top of the screen.
Select a Level 2 item.
Level 3 item screen (layer 1)
Level 3 item screen (layer 1)
Previous/Next page
Select a Level 1 item at the top of the screen.
Select a Level 2 item.
Level 3 item screen (layer 2 item)
Level 3 item screen (layer 2)
Previous/Next page

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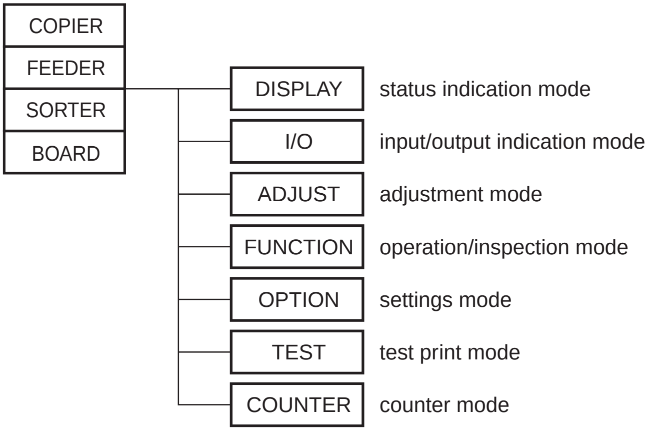
The machine's service mode is divided into the following 7 types:


COPIER
FEEDER
SORTER
BOARD
DISPLAY
status indication mode
I/O
input/output indication mode
ADJUST
adjustment mode
FUNCTION
operation/inspection mode
OPTION
settings mode
TEST
test print mode
COUNTER
counter mode

F-15-2

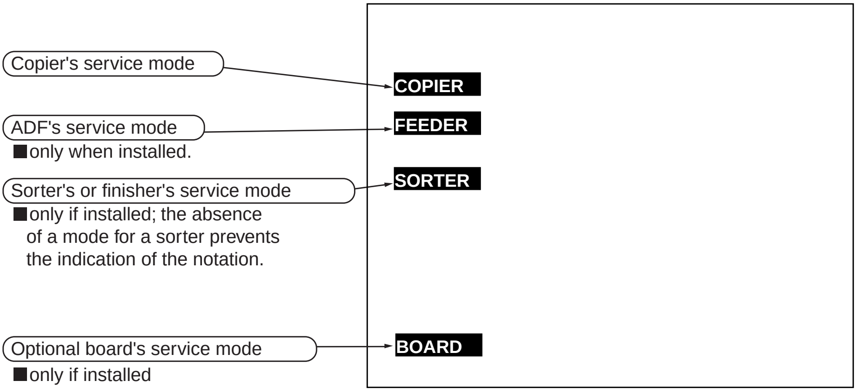
15.1.2 Starting Service Mode and Making Selections

⚠If you want to execute a machine operation using a service mode item, be sure to disconnect all cables from an external controller or a network before starting service mode. Particularly, if you are using a FUNCTION (operation/inspection) mode item, the arrival of a print job from an external source can cause the machine to malfunction, leading to damage.

---

1) Press the asterisk key "⊛" on the control panel.
2) Press the 2 and 8 keys of the keypad at the same time.
3) Press the asterisk key "⊛" on the control panel.

In response to the foregoing key operations, the machine will bring up the following Initial screen:


Copier's service mode
ADF's service mode
■only when installed.
Sorter's or finisher's service mode
■only if installed; the absence of a mode for a sorter prevents the indication of the notation.
Optional board's service mode
■only if installed
COPIER
FEEDER
SORTER
BOARD

F-15-3

15.1.3 Ending Service Mode

A press on the Reset key will bring back the Service Mode Initial screen.

Another press on the Reset key will end service mode, and bring back the User screen (standard screen).

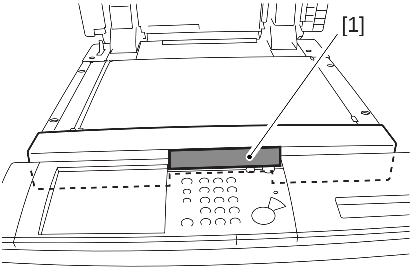
⚠If you used service mode (ADJUST, FUNCTION, OPTION), be sure to turn off and then on the main power switch after ending service mode.

15.1.4 Back-Up

At time of shipment from the factory, all machines are adjusted individually, and adjustment values are recorded in their respective service labels.

If you have replaced the reader controller PCB or the DC controller PCB, or if you have initialized the RAM, the adjustment values (for ADJUST and OPTION) will return to their default settings. If there has been any change in a service mode item, be sure to update its setting indicated on the service label. As necessary, make use of the space in the service label (as when recording an item not found on the label).

- Service Label for the Reader Controller PCB (behind the front cover [1] of the reader unit)



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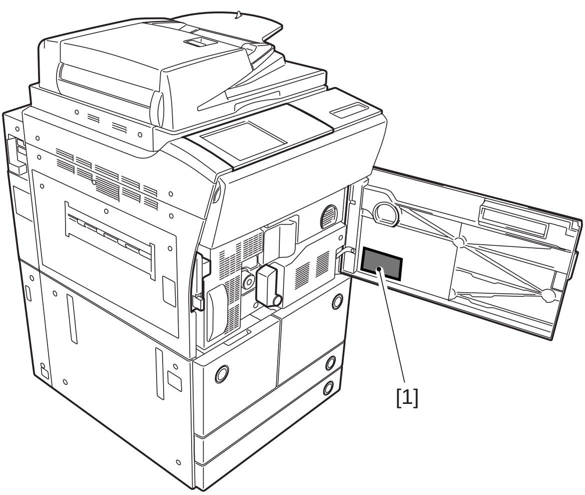
- Service Label [1] for the Main Controller PCB/DC controller PCB (behind the front cover of the printer unit)



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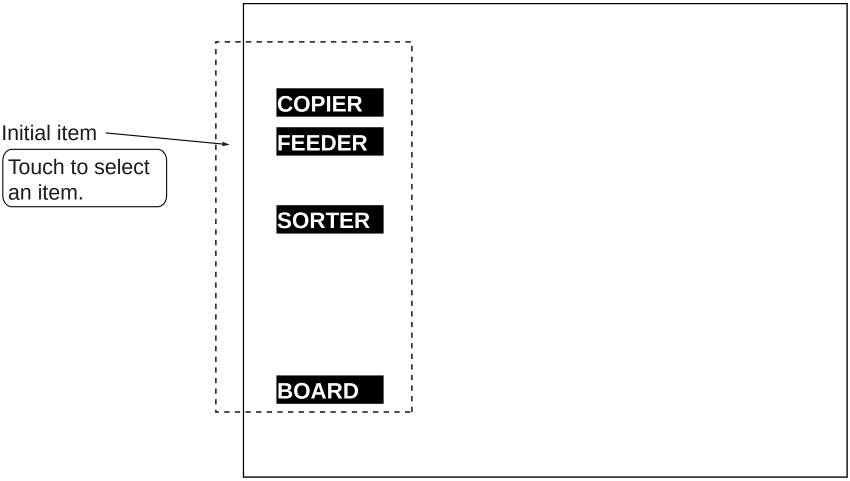
15.1.5 Initial Screen

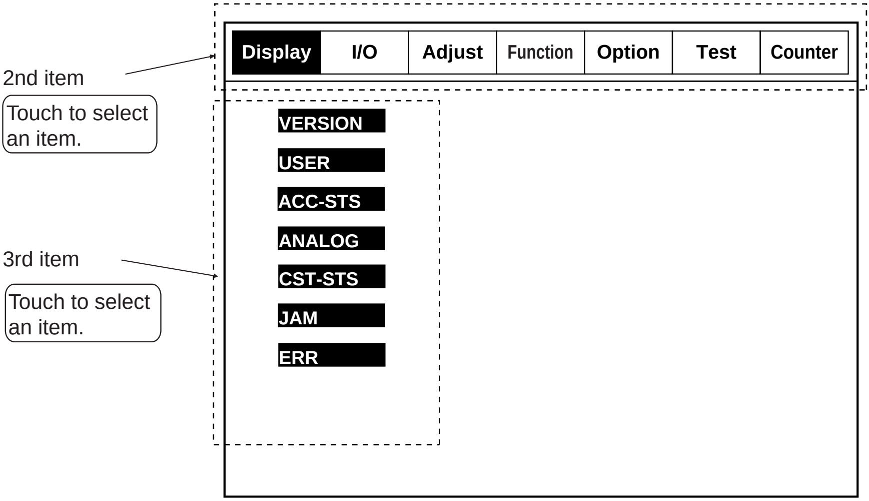

COPIER
FEEDER
SORTER
BOARD

Initial item

Touch to select an item.

F-15-6

15.1.6 2nd/3rd Item Screen


Display
I/O
Adjust
Function
Option
Test
Counter
VERSION
USER
ACC-STS
ANALOG
CST-STS
JAM
ERR

2nd item

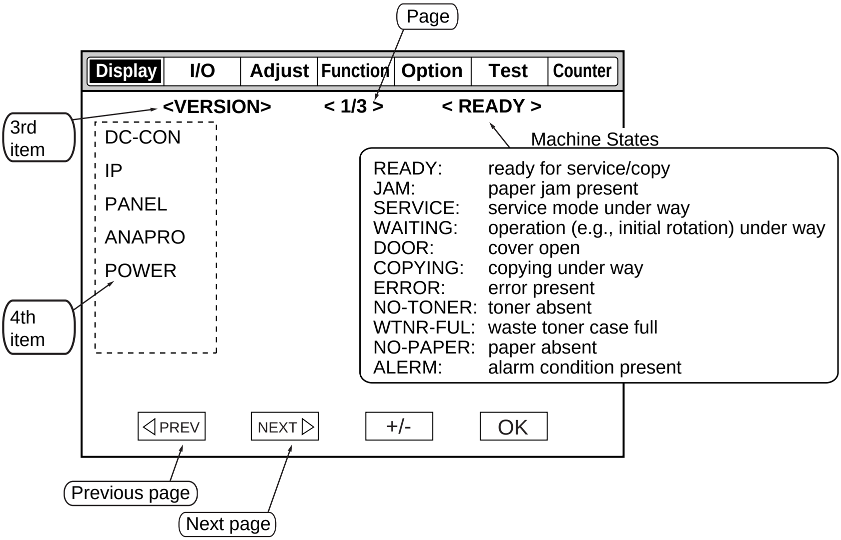
Touch to select an item.

3rd item

Touch to select an item.

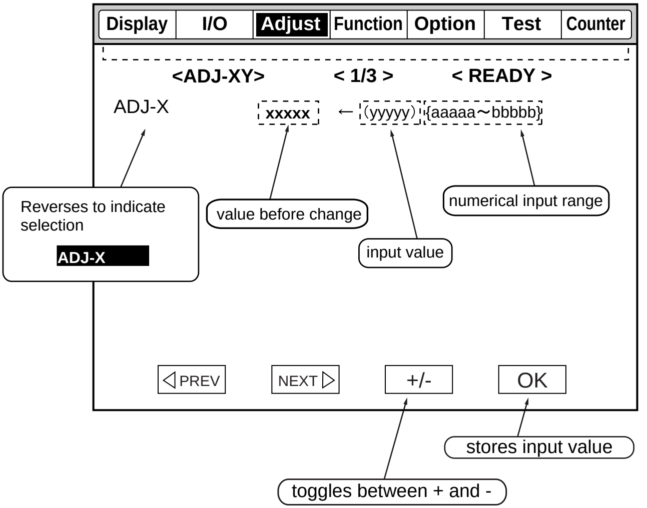
F-15-7

15.1.7 4th Item Screen


Page
Display
I/O
Adjust
Function
Option
Test
Counter
<VERSION>
< 1/3 >
< READY >
3rd item
DC-CON
IP
PANEL
ANAPRO
POWER
4th item
Machine States
PREV
NEXT
+/-
OK
Previous page
Next page

READY:	ready for service/copy
JAM:	paper jam present
SERVICE:	service mode under way
WAITING:	operation (e.g., initial rotation) under way
DOOR:	cover open
COPYING:	copying under way
ERROR:	error present
NO-TONER:	toner absent
WTNR-FUL:	waste toner case full
NO-PAPER:	paper absent
ALERM:	alarm condition present

F-15-8


Display
I/O
Adjust
Function
Option
Test
Counter
<ADJ-XY>
< 1/3 >
< READY >
ADJ-X
xxxxx
← (yyyyy)
{aaaaa～bbbbb}
Reverses to indicate selection
ADJ-X
value before change
input value
numerical input range
◁PREV
NEXT ▷
+/-
OK
stores input value
toggles between + and -

Stop key: press it to stop the ongoing operation.

Clear key: press to clear an input.

Start key: press to start copying without leaving service mode.

F-15-9

15.2 DISPLAY（Status Display Mode）

15.2.1 COPIER

15.2.1.1 VERSION

15.2.1.1.1 Overview

Use it to check the ROM version of individual PCBs (host machine and accessories).

- for example, in <R-CON XX.YY>, XX indicates the version and YY indicates R&D number.
- if no PCB is connected, the indication will be <--.-->.

15.2.1.1.2 <DC-CON>

Use it to check the ROM version of the DC controller PCB.

15.2.1.1.3 <R-CON>

Use it to check the ROM version of the reader controller PCB.

15.2.1.1.4 <PANEL>

Use it to check the ROM version of the control panel CPU PCB.

15.2.1.1.5 <ECO>

Use it to check the ROM version of the ECO PCB.

15.2.1.1.6 <FEEDER>

Uses it to check the ROM version of the DADF controller PCB.

15.2.1.1.7 <SORTER>

Use it to check the ROM version of the finisher controller PCB.

15.2.1.1.8 <FAX>

Use it to check the ROM version of the fax board.

15.2.1.1.9 <NIB>

Uses it to indicate the version of the network software.

15.2.1.1.10 <PS/PCL>

Use it to check the version of the UFR board (PS/PCL function).

15.2.1.1.11 <LIPS>

Use it to check the version of the UFR board (LIPS).

15.2.1.1.12 <SDL-STCH>

Use it to check the ROM version of the saddle stitcher controller PCB.

15.2.1.1.13 <OP-CON>

Use it to indicate the ROM version of the option controller PCB.

15.2.1.1.14 <MN-CON>

Use it to check the ROM version of the main controller PCB.

15.2.1.1.15 <BOOT-ROM>

Use it to check the boot ROM version of the main controller PCB.
- copier model/GDI-UFR model: xx.yyC
- LIPS mode: xx.yyL
- PS/PCL model: xx.yyN

15.2.1.1.16 <DIAG-DVC>

Use it to check the ROM version of the self-diagnosis device.

15.2.1.1.17 <RUI>

Use it to check the remote UI.

15.2.1.1.18 <PUNCH>

Use it to check the version of the punch unit.

15.2.1.1.19 <LANG-EN>

Use it to check the version of an English language file.

15.2.1.1.20 <LANG-FR>

Use it to check the version of a French language file.

15.2.1.1.21 <LANG-DE>

Use it to check the version of a German language file.

15.2.1.1.22 <LANG-IT>

Use it to check the version of an Italian language file.

15.2.1.1.23 <LANG-JP>

Use it to check the version of a Japanese language file.

15.2.1.1.24 <GDI-UFR>

Use it to check the version of the UFR board (GDI-UFR function).

15.2.1.2 ACC-STS

15.2.1.2.1 Overview

Use it to check the state of connection of accessories.

15.2.1.2.2 <FEEDER>

Use it to check the state of connection of a DADF:
0: not connected.
1: connected.

15.2.1.2.3 <SORTER>

Use it to check the state of connection of a finisher and punch unit.
0: not connected.
1: finisher connected.
2: saddle finisher connected.

15.2.1.2.4 <DECK>

Use it to check the state of connection of a paper deck.
0: not connected.
1: connected.

15.2.1.2.5 <CARD>

Use it to check the state of connection of a card reader:
0: card reader connected but card not inserted.
1: card reader not connected; or, card reader connected and card inserted
(indicates '1' if ready for copying; indicates '0' if not ready for copying)

15.2.1.2.6 <DATA-CON>

Use it to check the state of connection of a copy data controller.
0: not connected.
1: connected.

15.2.1.2.7 <RAM>

Use it to check the size of the memory mounted on the main controller PCB.
512MB, 768MB

15.2.1.2.8 <COINROBO>

Uses it to indicate the state of connection of a coin vendor.
0: not connected.
1: connected.

15.2.1.2.9 <NIB>

Use it to check the state of connection of a network board.
0: not connected.
1: Ethernet board connected.

2: TokenRing board connected.
3: Ethernet board and TokeRing board connected.

15.2.1.2.10 <NETWARE>

Use it to check the state of installation of network firmware.
0: not installed.
1: installed.

15.2.1.2.11 <SEND>

Use it to check the presence of the SEND function.
0: SEND function absent.
1: SEND function present.

15.2.1.3 ANALOG

15.2.1.3.1 Overview

Use it to check the measurements taken by analog sensors.

15.2.1.3.2 <TEMP>

Use it to check the machine inside temperature (environment sensor; in deg C).

15.2.1.3.3 <HUM>

Use it to check the machine inside humidity (environment sensor; in %RH).

15.2.1.3.4 <ABS-HUM>

Use it to check moisture content (environment sensor; in g).

15.2.1.3.5 <FIX-UC>

Use it to check the surface temperature of the middle of the fixing upper roller (as detected by the main thermistor; in deg C)

15.2.1.3.6 <FIX-UE>

Use it to check the surface temperature at the edge of the fixing upper roller (as detected by the sub thermistor; in deg C)

15.2.1.3.7 <FIX-LC>

Use it to indicate the temperature of the center of the fixing lower roller. unit: deg C

15.2.1.3.8 <FIX-LE>

Use it to indicate the temperature of the edge of the fixing lower roller. unit: deg C

15.2.1.3.9 <FIX-EXC>

Use it to indicate the temperature of the center of the outside heating roller. unit: deg C

15.2.1.3.10 <FIX-EXE>

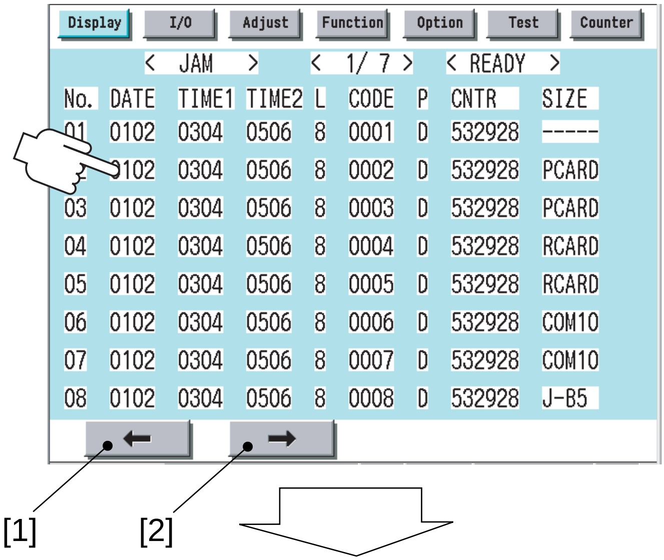
Use it to indicate the temperature of the edge of the outside heating roller unit: deg C

15.2.1.4 JAM

15.2.1.4.1 Overview

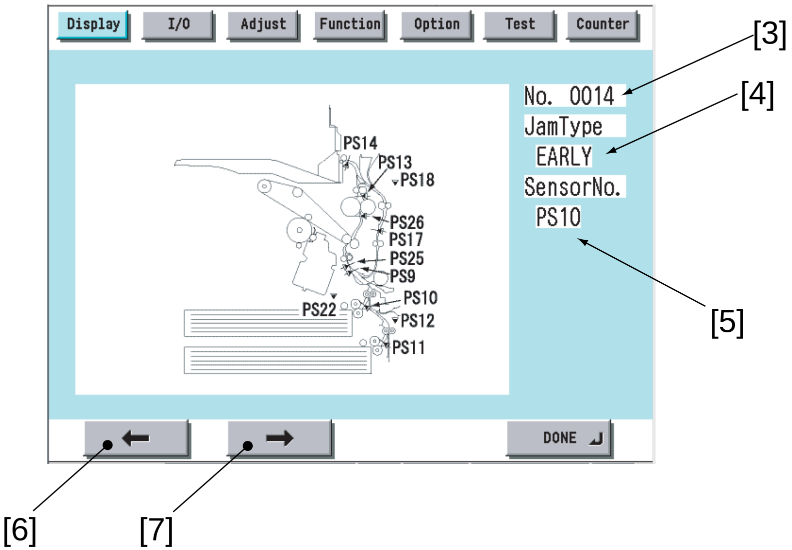
Use it to check jam data.

No description page


Display
I/O
Adjust
Function
Option
Test
Counter
←
→
[1]
[2]

< JAM > < 1/ 7 > < READY >

No.	DATE	TIME1	TIME2	L	CODE	P	CNTR	SIZE
01	0102	0304	0506	8	0001	D	532928	-----
	0102	0304	0506	8	0002	D	532928	PCARD
03	0102	0304	0506	8	0003	D	532928	PCARD
04	0102	0304	0506	8	0004	D	532928	RCARD
05	0102	0304	0506	8	0005	D	532928	RCARD
06	0102	0304	0506	8	0006	D	532928	COM10
07	0102	0304	0506	8	0007	D	532928	COM10
08	0102	0304	0506	8	0008	D	532928	J-B5


Display
I/O
Adjust
Function
Option
Test
Counter
PS14
PS13
PS18
PS26
PS17
PS25
PS9
PS22
PS10
PS12
PS11
←
→
DONE
[3]
[4]
[5]
[6]
[7]

No. 0014

JamType

EARLY

SensorNo.

PS10

F-15-10

Touch any Jam Indication screen to go to the detailed screen of that particular type of jam.
1. press to go to the previous page.
2. press to go to the next page.
3. indicates the order of occurrence of the jam in question.
4. indicates the type of jam.
6. press to go to the previous Jam Indication screen.
7. press it to go to the next Jam Indication screen.

15.2.1.4.2 <No.>

Indicates the order of occurrence of the jam in question.
1 through 50 (the higher the number, the older the jam)

15.2.1.4.3 <DATE>

Indicates the date of the jam in question.

15.2.1.4.4 <TIME1>

Indicates the time of the jam in question.

15.2.1.4.5 <TIME2>

Indicates the jam recovery time.

15.2.1.4.6 <L>

Indicates the location of the jam in question.

T-15-1

Code	Location/classification
0	host machine
1	feeder
2	finisher

15.2.1.4.7 <CODE>

Jam Code (See the list of jam codes.)

15.2.1.4.8 <P>

Indicates the source of paper used.

T-15-2

Code	Description
1	cassette 1
2	cassette 2
3	cassette 3
4	cassette 4
5	side paper deck
6	manual feed tray
7	duplexing unit

15.2.1.4.9 <CNTR>

Indicates the reading of the soft counter for the source of paper.

15.2.1.4.10 <SIZE>

Indicates the size of paper.

15.2.1.4.11 Jam Code (jam type)

T-15-3

Code	Type of jam
01xx	delay jam
02xx	stationary jam
0Axx	residnal jam
0B00	door open jam
0B01	door open jam (detection by software)
0D91	size mismatch (paper shorter than specified size)
0D92	medium mismatch (paper instead of transparency)
0D93	medium mismatch (transparency instead of paper)

15.2.1.4.12 Jam Code (printer unit)

T-15-4

Code	Sensor type	Sensor number	Remarks
xx01	right deck pickup sensor	PS33	does not detect a stationary jam
xx02	left deck pickup sensor	PS40	does not detect a stationary jam
xx03	cassette 3 pickup sensor	PS48	does not detect a stationary jam
xx04	cassette 4 pickup sensor	PS54	does not detect a stationary jam
xx05	vertical path 4 sensor	PS63	
xx06	vertical path 3 sensor	PS62	
xx07	vertical path 2 sensor	PS61	
xx08	vertical path 1 sensor	PS60	

Code	Sensor type	Sensor number	Remarks
xx09	vertical path confluence sensor	PS32	when the source of paper is NOT the right deck
xx09	vertical path 0 sensor	PS31	when the source of paper is the right deck
xx0A	transparency sensor (front, rear)	PS3, PS29	when the mode is not transparency mode
xx0A	registration sensor	PS9	when the mode is transparency mode
xx0B	post-transfer sensor	PS10	does not detect a stationary jam
xx0C	inside delivery sensor	PS12	does not detect a stationary jam
xx0D	reversal sensor	PS14	when in face-down delivery mode
xx0E	outside delivery sensor	PS13	
xx0F	reversal vertical path sensor	PS15	
xx11	duplex left sensor	PS17	
xx12	duplex confluence sensor	PS18	
xx13	side paper deck pickup sensor	PS101	does not detect a stationary jam
xx14	side paper deck feed sensor	PS106	
xx15	fixing inlet sensor	PS11	detects a residual jam only
xx16	left deck stationary sensor	PS47	detects a residual jam only
0D90	transparency sensor (front, rear)	PS3, PS29	when the mode is transparency mode
0D91	transparency sensor (front, rear)	PS3, PS29	when the mode is not transparency mode
0D91	registration sensor	PS9	when the mode is transparency mode
0D92	transparency sensor (front, rear)	PS3, PS29	
0D93	transparency sensor (front, rear)	PS3, PS29	

15.2.1.4.13 Jam Code (finisher-related)

T-15-5

Code	Sensor type	Sensor notation
1001	inlet path sensor feed delay jam	PI33
1002	punch path sensor (punch registration sensor) feed delay jam	LED5/PTR5
1004	delivery path sensor feed delay jam	PI34
1101	inlet path sensor feed stationary jam	PI33
1102	inlet path sensor feed stationary jam punch path sensor (Punch registration sensor) feed stationary jam	LED5/PTR5
1104	delivery path sensor feed stationary jam	PI34
1200	timing jam	PI33
1500	stapler staple jam	STP
1300	power-on jam	PI33,PI34
1400	door open jam	DOOR
1644	punch jam	LED5/PTR5
1645	punch power-on jam	LED5/PTR5
1791	saddle feed sensor feed delay jam	PI18,PI19,PI20
1792	saddle delivery sensor feed delay jam	PI11
1793	saddle inlet sensor feed delay jam	PI22
17A1	saddle feed sensor feed stationary jam	PI18,PI19,PI20
17A2	saddle delivery sensor feed stationary jam	PI11,PI17
17A3	saddle inlet sensor feed stationary jam	PI22
1786	saddle stapler staple jam	S STP
1787	saddle power-on jam	PI11,PI18,PI19,PI20,PI22
1788	saddle door open jam	DOOR

15.2.1.4.14 Jam Sensor (ADF-related)

Jam Sensor (ADF-related)

T-15-6

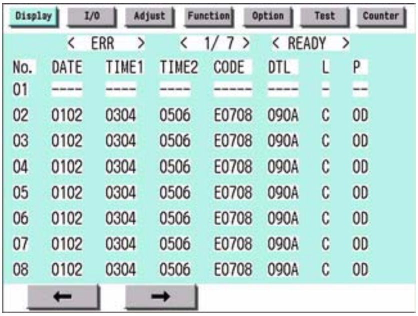
Code	**Sensor type**	**Sensor notation**	**Description**
0001	post-separation sensor	PI7	the post-separation sensor does not detect paper when a feed of 452 mm has been made after the start of separation.
0002	post-separation sensor	PI7	- the separation sensor detects paper after a feed of "500 mm (if extra length, +200 mm) - 45.5 mm" has been made. - the sensor goes on within a feed of 12 mm after detection of the trailing edge (holed paper); the post-separation sensor detects paper when a feed of 50 m has been made after the separation sensor goes on.
0003	registration sensor	PI1	the registration sensor does not detect paper when a feed of 134.8 mm has been made after the post-separation sensor goes on.
0004	registration sensor	PI1	the read sensor goes off before the registration sensor goes off.
0005	feed sensor	PI8	- read sensor does not detect paper when a feed of 364.2 mm (182.1 x 2) has been made from the point of registration. - the read sensor does not detect paper when a feed of 157.4 mm (78.7 x 2) has been made from the point of No. 2 registration.
0006	feed sensor	PI8	- the read sensor detects paper when a feed of 500 mm (if extra-length, +200 mm) has been made from the start of feed after a temporary stop at point of reading. - the read sensor detects paper when a feed of 514 mm has been made after the start of feed from the standby point in mix mode (LTRR/ LGL identified).
0007	delivery reversal sensor	PI9	- if not in high-speed duplex mode, the delivery sensor does not detect when a feed of 132.1 mm has been made after paper has reached the leading edge downstream roller with respect to the activation of the read sensor. - the delivery sensor does not detect paper when a feed of 50 mm has been made after the start of feed during a switch-back operation.
0008	delivery reversal sensor	PI9	the delivery sensor detects paper when a feed of 161.9 mm has been made from the end of reading the trailing edge.

Code	**Sensor type**	**Sensor notation**	**Description**
0042	post-separation sensor	PI7	1st; stationary jam at the post-separation sensor
0043	registration sensor	PI1	1st; not reaching the registration sensor
0044	registration sensor	PI1	1st; stationary at the registration sensor
0045	feed sensor	PI8	1st; not reaching the read sensor
0046	feed sensor	PI8	1st; stationary at the read sensor
0047	delivery reversal sensor	PI9	1st; not reaching heat delivery sensor
0048	delivery reversal sensor	PI9	1st; stationary sensor at the delivery sensor
0071	wrong timing	-	error software timing
0073	wrong timing	-	the shift motor is faulty
0090	ADF open/closed sensor 1	PS502	the ADF is opened during operation
0091	ADF open/closed sensor 1	PS502	the ADF is opened during operation (while paper is in wait)
0092	DF cover open/closed sensor	PI6	A cover is opened during operation (while a drive mechanism is in operation).
0093	DF cover pen/closed sensor	PI6	A cover is opened during operation (in wait for paper).
0094	registration sensor, separation sensor, feed sensor, delivery reversal sensor	PI1,PI7, PI8,PI9	Paper is detected in the path while the 1st sheet is being picked up.
0095	original placement sensor, DF cover open/closed sensor, ADF open/closed sensor 1	PI5,PI6, PS502	A signal arrives indicating the start of pickup in the absence of an original in the tray or while the machine is in an OPEN state.

15.2.1.5 ERR

15.2.1.5.1 Overview

Use it to check error data.



< ERR > < 1/ 7 > < READY >

No.	DATE	TIME1	TIME2	CODE	DTL	L	P
01	----	----	----	-----	----	-	--
02	0102	0304	0506	E0708	090A	C	0D
03	0102	0304	0506	E0708	090A	C	0D
04	0102	0304	0506	E0708	090A	C	0D
05	0102	0304	0506	E0708	090A	C	0D
06	0102	0304	0506	E0708	090A	C	0D
07	0102	0304	0506	E0708	090A	C	0D
08	0102	0304	0506	E0708	090A	C	0D

F-15-11

15.2.1.5.2 <No.>

Indicates the order of occurrence of the error in question.
1 to 50 (the higher the number, the older the error)

15.2.1.5.3 <DATE>

Indicates the date of the error in question.

15.2.1.5.4 <TIME1>

Indicates the time of the error in question.

15.2.1.5.5 <DATE2>

Indicates the error return time.

15.2.1.5.6 <CODE>

Indicates the cover of the error in question.

15.2.1.5.7 <DTL>

Indicates the detail code of the error in question. (if not, '0000')

15.2.1.5.8 <L>

T-15-7

Location Classification

0: main controller

1: DADF

2: finisher

3: not used

4: reader unit

5: printer unit

6: PDL board (any of)

7: fax board

15.2.1.5.9 <P>

not used

15.2.1.6 HV-STS

15.2.1.6.1 Overview

Use it to indicate measurements taken of the voltage/current.

15.2.1.6.2 <PRI-GRID>

grid voltage of primary charging assembly.unit: V
Use it to indicate the level of current of the primary grid bias. unit: A

15.2.1.6.3 <PRE-TR>

Use it to indicate the level of current of pre-transfer charging. unit: micro A

15.2.1.6.4 <BIAS>

Use it to indicate the developing bias DC level. unit: V

15.2.1.7 DPOT

15.2.1.7.1 Overview

Use it to indicate data collected of the photosensitive drum/transfer belt potential control mechanism.

15.2.1.7.2 <DPOT-K>

Use it to indicate the surface potential of the photosensitive drum. unit: V

15.2.1.7.3 <VDM>

Use it to indicate the dark-area potential (VD) for copying. unit: V

15.2.1.7.4 <1TR-DC4K>

Use it to indicate the primary transfer DC (Bk by 4C). unit: V
400 to 3000 [V]

15.2.1.8 DENS

15.2.1.8.1 Overview

Use it to check the concentration of developer inside the developing assembly.

15.2.1.8.2 <DENS-Y>

T-15-8

	Use it to check the computed value of the density (Y) of the patch formed on the photosensitive drum. (indicates the discrepancy from the target value in %)
Reference	The value is updated when the machine executes toner supply operation after the main power switch is turned on.

Optimum	-25 to +25

15.2.1.8.3 <DENS-M>

T-15-9

	Use it to check the computed value of the density (M) of the patch formed on the photosensitive drum. (indicates the discrepancy from the target value in %)
Reference	The value is updated when the machine executes toner supply operation after the main power switch is turned on.
Optimum	-25 to +25

15.2.1.8.4 <DENS-C>

T-15-10

	Use it to check the computed value of the density (C) of the patch formed on the photosensitive drum. (indicates the discrepancy from the target value in %)
Reference	The value is updated when the machine executes toner supply operation after the main power switch is turned on.
Optimum	-25 to +25

15.2.1.8.5 <REF-Y/M/C>

T-15-11

	Use it to check the density standard (Y/M/C) of the developer on the developing cylinder.

Reference	The value is updated when the machine executes toner supply operation after the main power switch is turned on.
Optimum	464 to 560

15.2.1.8.6 <SGNL-Y/M/C>

T-15-12

	Use it to check the measurement (Y/M/C) of the density of the developer on the developing cylinder.
Reference	The value is updated when the machine executes toner supply operation after the main power switch is turned on.
Optimum	225 to 863

15.2.1.9 MISC

15.2.1.9.1 Overview

Others

15.2.1.9.2 <ENV-TR>

Indicates the environmental zone.
Indicates the environmental zone for transfer control according to the environment (temperature, humidity) inside the printer.
range of indications:
1: low humidity environment (up to 5.8 g)
2: normal humidity environment (5.9 to 17.3 g)
3: high humidity environment (17.4 g or higher)
at time of shipment/upon RAM initialization: 2

15.2.1.10 ALARM-1

15.2.1.10.1 Overview

Use it to check the image ratio of the images formed using individual colors.

15.2.1.10.2 <IMG-DT-Y>

Use it to check the average of the image ratios of the images formed using yellow.

15.2.1.10.3 <IMG-DT-M>

Use it to check the average of the image ratios of the images formed using magenta.

15.2.1.10.4 <IMG-DT-C

Use it to check the average of the image ratios of the images formed using cyan.

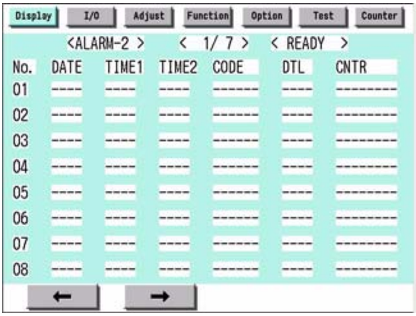
15.2.1.10.5 <IMG-DT-K>

Use it to check the average of the image ratios of the images formed using black.

15.2.1.11 ALARM-2

15.2.1.11.1 Overview

Use it to check alarm data.



<ALARM-2 > < 1/ 7 > < READY >

No.	DATE	TIME1	TIME2	CODE	DTL	CNTR
01	----	----	----	------	----	--------
02	----	----	----	------	----	--------
03	----	----	----	------	----	--------
04	----	----	----	------	----	--------
05	----	----	----	------	----	--------
06	----	----	----	------	----	--------
07	----	----	----	------	----	--------
08	----	----	----	------	----	--------

F-15-12

T-15-13

Item	Description	Remarks
No.	indicates the order of occurrence of alarms (1 through 50; the higher the number, the older the error).	
DATE	indicates the date of the alarm in question.	
TIME1	indicates the time of the alarm in question.	
TIME2	indicates the alarm recovery time.	
CODE	indicates the code of the location at which the alarm in question occurred. (See the table on next page.)	
	indicates the code of the alarm in question. (See the table on next page.)	
DTL	Indicates the detail code of the alarm in question. (See the table on next page.)	
CNTR	indicates the total counter reading at the time of the alarm in question.	

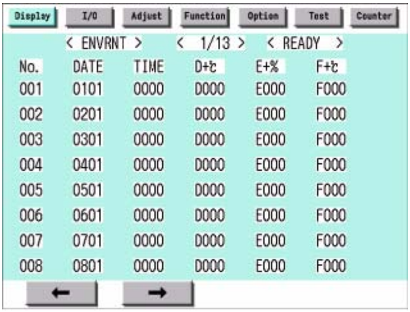
T-15-14

Location code	Alarm code	
02 scanner	0002	indicates the presence of dirt on the glass for stream reading.
	0020	line correction alarm (upon detection of dust on the stream reading glass between originals)
04 pickup/feed	0001	cassette 1 lifter error
	0002	cassette 2 lifter error
	0003	cassette 3 lifter error
	0004	cassette 4 lifter error
	0008	optional deck lifter error
33 fan	0011	fixing heat discharge fan
50 ADF	0010	indicates that the original separation alarm condition has occurred 3 times in sequence (i.e., faulty pickup of the 1st original).
61 finisher	0001	staple absent
62 saddle stitcher	0001	stitch staple absent
65 puncher	0001	punch waste case full

15.2.1.12 ENVRNT

15.2.1.12.1 Overview

Displaying Environment Logs
Use it to indicate logs of changes that may have taken place for [machine inside temperature (deg C)/humidity (%)/fixing roller surface (middle) temperature (deg C)] collected from the monitor output of the fixing thermistor (main) and the environment sensor.
Remarks
The intervals of data collection may be set in service mode: COPIER>OPTION>BODY>ENVP-IN.



< ENVRNT > < 1/13 > < READY >

No.	DATE	TIME	D+℃	E+%	F+℃
001	0101	0000	D000	E000	F000
002	0201	0000	D000	E000	F000
003	0301	0000	D000	E000	F000
004	0401	0000	D000	E000	F000
005	0501	0000	D000	E000	F000
006	0601	0000	D000	E000	F000
007	0701	0000	D000	E000	F000
008	0801	0000	D000	E000	F000

F-15-13

T-15-15

Item	**Description**
No.	number of a data piece (higher the number, older the data piece)
DATE	date of data collection
TIME	time of data collection
D + deg C	machine inside temperature
E + %	machine inside humidity
F + deg C	fixing roller surface (middle) temperature

15.2.2 FEEDER

15.2.2.1 <FEEDSIZE>

T-15-16

	Use it to check the size of the original detected by the ADF.
Reference	Indicates the detection in terms of paper size (e.g., A4, LTR).

15.2.2.2 <TRY-WIDE>

Use it to check the original pickup tray width of the DF.

15.2.2.3 <SPSN-LMN>

T-15-17

	Use it to indicate the manual adjustment value (light-emission voltage) of the post-separation sensor.
Optimum range	179 or less

15.2.2.4 <SPSN-RCV>

T-15-18

	Use it to indicate the manual adjustment value (light reception voltage) of the post-separation sensor.
Optimum range	paper present: 154 or less paper absent: 179 or more

15.2.2.5 <RDSN-LMN>

T-15-19

	Use it to indicate manual adjustment value (light emission voltage of the reader sensor.
Optimum range	179 or less

15.2.2.6 <RDSN-RCV>

T-15-20

	Use it to indicate the manual adjustment value (light reception voltage) of the read sensor.
Optimum range	paper present: 154 or less paper absent: 179 or more

15.2.2.7 <DRSN-LMN>

T-15-21

	Use it to indicate the manual adjustment value (light emission voltage of the delivery reversal sensor.
Optimum range	905 or less

15.2.2.8 <RDSN-RCV>

T-15-22

	Use it to indicate the manual adjustment value (light reception voltage) of the delivery reversal sensor.
Optimum range	paper present: 154 or less paper absent: 179 or more

15.2.3 DISPLAY(Status Display Mode)Level2

15.2.3.1 COPIER

15.2.3.1.1 VERSION

<LANG-CS>

Use it to check the version of the Czech language file.

<LANG-DA>

Use it to check the version of the Danish language file.

<LANG-EL>

Use it to check the version f the Greek language file.

<LANG-ES>

Use it to check the version of the Spanish language file.

<LANG-ET>

Use it to check the version of the Estonian language file.

<LANG-FI>

Use it to check the version of the Finnish language file.

<LANG-HU>

Use it to check the version of the Hungarian language file.

<LANG-KO>

Use it to check the version of the Korean language file.

<LANG-NL>

Use it to check the version of the Dutch language file.

<LANG-NO>

Use it to check the version of the Norwegian language file.

<LANG-PL>

Use it to check the version of the Polish language file.

<LANG-PT>

Use it to check the version of the Portuguese language file.

<LANG-RU>

Use it to check the version of the Russian langue file.

<LANG-SL>

Use it to check the version of the Slovenian language file.

<LANG-SV>

Use it to check the version of the Swedish language file.

<LANG-TW>

Use it to check the version of the Chinese language file (traditional text).

<LANG-ZH>

Use it to check the version of the Chinese language file (simplified text).

<ECO-ID>

Use it to check the ECO-ID number

<LANG-BU>

Use it to check the version of the Bulgarian language file.

<LANG-CR>

Use it to check the version of the Croatian language file.

<LANG-RM>

Use it to check the version of the Romanian language file.

<LANG-SK>

Use it to check the version of the Slovakian language file.

<LANG-TK>

Use it to check the version of the Turkish language file.

15.2.3.1.2 CST-STS

<WIDTH-MF>

Use it to check the width of paper in the manual feed tray (in mm).

15.2.3.1.3 HV-STS

<1EL>

Use it to indicate the primary transfer static eliminator bias level.
Display range: -4000 to 0
reference: -4000 (unit: V)

<2EL>

Indicates the level of the secondary transfer static eliminator bias.
standard: 0 (unit: yA)

<PRE-TR-Y>

Indicating the Current Output Level(Y) for the Pre-Transfer Charging Assembly range of readings:-650 to 0

<PRE-TR-M>

Indicating the Current Output Level(M) for the Pre-Transfer Charging Assembly range of readings:-650 to 0

<PRE-TR-C>

Indicating the Current Output Level(C) for the Pre-Transfer Charging Assembly range of readings:-650 to 0

15.2.3.1.4 CCD

<TARGET-B>

Use it to check the shading target value for B.

<TARGET-G>

Use it to check the shading target value for G.

<TARGET-R>

Use it to check the shading target value for R.

<GAIN-OB>

Use it to indicate the gain level adjustment value (for color) of odd-numbered blue bits of the CCD.

<GAIN-OG>

Use it to indicate the gain level adjustment value (for color) of odd-numbered green bits of the CCD.

<GAIN-OR>

Use it to indicate the gain level adjustment (for color) of odd-numbered red bits of the CCD.

<GAIN-EB>

Use it to indicate the gain level adjustment value (for color) of even-numbered blue bits of the CCD.

<GAIN-EG>

Use it to indicate the gain level adjustment (for color) of even-numbered green bits of the CCD.

<GAIN-ER>

Use it to indicate the gain level adjustment value (for color) of even-numbered red bits of the CCD.

15.2.3.1.5 DPOT

<VCONT-Y>

Use it to check the current value of the target contrast potential (Y).

<VCONT-M>

Use it to check the current value of the target contrast potential (M).

<VCONT-C>

Use it to check the current value of the target contrast potential (C).

<VCONT-K>

Use it to check the current value of the target contrast potential (K).

<VBACK-Y>

Use it to check the current value of the defogging potential (Y).

<VBACK-M>

Use it to check the current value of the defogging potential (M).

<VBACK-C>

Use it to check the current value of the defogging potential (C).

<VBACK-K>

Use it to check the current value of the defogging potential (K).

<2TR-PPR>

Use it to check the output value of the paper separation voltage of the secondary transfer DC voltage generated last.

<2TR-BASE>

Use it to check the output value of the reference voltage of the secondary transfer DC voltage generated last.

<1TR-DC-Y>

Use it to check the output value of the primary transfer DC voltage (Y) generated last.

<1TR-DC-M>

Use it to check the output value of the primary transfer DC voltage (M) generated last.

<1TR-DC-C>

Use it to check the output value of the primary transfer DC voltage (C) generated last.

<1TR-DC-K>

Use it to check the output value of the primary transfer DC voltage (K) generated last.

<VDT-SNS>

Indicating the Dark Area Potential Target Value(potential sensor position) Use it to idicate the dark area potential target level(VD) for the potential sensor position.

standard level:504V

<VDT-BK>

Indicating the Dark Area Potential Target Value(black developing asembly position) Use it to idicate the dark area potential target value(VD) for the point of black development.

standard level:490V

<VDT-YMC>

Indicating the Dark Area Potential Target(color development position) Use it to idicate the dark area target value(VD) for the point of color development.

standard level:450V

<LPWR-Y>

Indicatating the Y Color Laser Power Level (result of potential cotrol used as VL target potential)

Use it to indicate the laser power level for Y used as the VL target potential for potential control.

range of settings:00 to FF(hexadecimal notation)

<LPWR-M>

Indicatating the M Color Laser Power Level (result of potential cotrol used as VL target potential)

Use it to indicate the laser power level for Y used as the VL target potential for potential control.

range of settings:00 to FF(hexadecimal notation)

<LPWR-C>

Indicatating the C Color Laser Power Level (result of potential cotrol used as VL target potential)

Use it to indicate the laser power level for Y used as the VL target potential for potential control.

range of settings:00 to FF(hexadecimal notation)

<LPWR-K>

Indicatating the K Color Laser Power Level (result of potential cotrol used as VL target potential)

Use it to indicate the laser power level for K used as the VL target potential for potential control.

range of settings:00 to FF(hexadecimal notation)

15.2.3.1.6 DENS

<DENS-S-Y>

Use it to indicate the measurement (Y) of the density of the sample image formed during ATR control.

<DENS-S-M>

Use it to check the density value (M) detected of the sample image formed at time of ATR control.

<DENS-S-C>

Use it to check the density value (C) detected of the sample image formed at time of ATR control.

<D-Y-TRGT>

Use it to check the target value (Y) of the developer density.

<D-M-TRGT>

Use it to check the target value (M) of the developer density.

<D-C-TRGT>

Use it to check the target value (C) of the developer density.

<P-SENS-P>

Indicates the result of background detection (P wave component) executed as part of analog patch detection.

The currently valid value will be indicated only upon execution of analog patch detection after the power is turned on.

<DEV-DC-Y>

Use it to check the output value of the developing DC voltage (Y) generated last.

<DEV-DC-M>

Use it to check the output value of the developing DC voltage (M) generated last.

<DEV-DC-C>

Use it to check the output value of the developing DC voltage (C) generated last.

<DEV-DC-K>

Use it to check the output value of the developing DC voltage (K) generated last.

<D-CRNT-P>

Uses it to indicate the value (P wave) measured of the dark current at time of ATR control.

<D-CRNT-S>

Uses it to indicate the value (S wave) measured of the dark current at time of ATR control.

<P-SENS-S>

Use it to check the value (S wave) detected of the intensity of light from the background (drum) at time of ATR control.

<DENS-Y-H>

Use it to check the history of measurements taken by the ATR sensor (Y; latest 8 measurements).

<DENS-M-H>

Use it to check the history of measurements taken by the ATR sensor (M; latest 8 measurements).

<DENS-C-H>

Use it to check the history of measurements taken by the ATR sensor (C; latest 8 measurements).

<DS-S-Y-H>

Use it to indicate the history of the results of patch image detection (Y; latest 8).

<DS-S-M-H>

Use it to indicate the history of the results of patch image detection (M; latest 8).

<DS-S-C-H>

Use it to indicate the history of the results of patch image detection (C; latest 8).

<P-LED-DA>

Use it to check the D/A settings of the LED for the path image sensor.

<SPL-LG-Y>

Use it to indicate the present level of the density reference signal for the Y developing assembly.

<SPL-LG-M>

Use it to indicate the present level of the density reference signal for the M developing assembly.

<SPL-LG-C>

Use it to indicate the present level of the density reference signal for the C developing assembly.

<PSENS-S>

Use it to indicate the measurement of the background at time of analog patch operation (S wave component).

<PSENS-P>

Use it to indicate the measurement of the background at time of analog patch operation (P wave component).

15.2.3.1.7 MISC

<LPOWER>

Use it indicate the laser intensity in real time.
range of display: 00 to FF (in hexadecimal notation)

15.2.3.1.8 ALARM-1

<LST-DY-Y>

Use it to indicate the image duty for Y generated most recently.
range of display: 0 to 100 (%)

<LST-DY-M>

Use it to indicate the image duty for M generated most recently.
range of display: 0 to 100 (%)

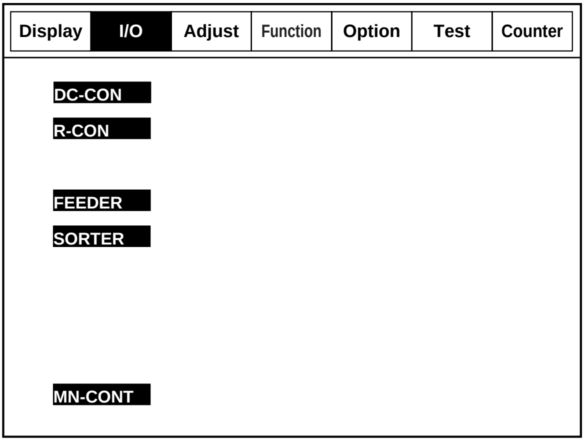
<LST-DY-C>

Use it to indicate the image duty for C generated most recently.
range of display: 0 to 100 (%)

15.3 I/O （I/O Display Mode）

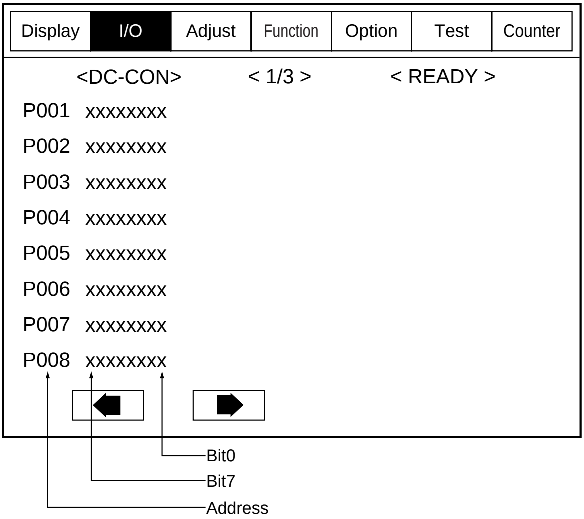
15.3.1 Overview

The following appears in response to COPIER>I/O; descriptions of the items (limited to those needed in the field) area given on the pages that follow:


Display
I/O
Adjust
Function
Option
Test
Counter
DC-CON
R-CON
FEEDER
SORTER
MN-CONT

F-15-14

<Guide to the Screen>


Display
I/O
Adjust
Function
Option
Test
Counter
Bit0
Bit7
Address

<DC-CON> < 1/3 > < READY >

P001 xxxxxxxx
P002 xxxxxxxx
P003 xxxxxxxx
P004 xxxxxxxx
P005 xxxxxxxx
P006 xxxxxxxx
P007 xxxxxxxx
P008 xxxxxxxx

F-15-15

15.3.2 <DC-CON>

T-15-23

Address	**bit**	**Item**	**Remarks**
P001	0	main thermistor (overheating)	0: error
	1	main thermistor (open circuit)	0: error
	2	shift thermistor (overheating)	0: error
	3	shift thermistor (open circuit)	0: error
	4	outside heating roller thermistor (overheating)	0: error
	5	outside heating roller thermistor (open circuit)	0: error
	6	thermistor-related hard latch signal	0: error
	7	reserved	not used
	8	for check	1: blown fuse
	9	for check	1: blown fuse
	10	DDI general input	not used
	11	DDI general input	not used
	12	DDI general input	not used
	13	DDI power	0: POWER ON
	14	not used	
	15	interlock 24 V (detected)	0: 24 V detected

Address	bit	Item	Remarks
P002	0	Upper right cover open/closed sensor (PS5)	0: door open
	1	Lower right cover open/closed sensor (PS64)	0: door open
	2	Front cover switch (SW12)	1: door open
	3	Black toner supply motor connection (M25)	0: connected (valid only if motor at rest)
	4	fixing unit (detected)	0: unit installed
	5	feeder unit (detected)	0: unit installed
	6	right deck presence/absence (detected)	1: ON
	7	left deck presence/absence (detected)	1: ON
	8	Drum/ITB motor (M2) lock (detected)	0: lock (sync rotation)
	9	developing motor (M3) lock (detected)	0: lock (sync rotation)
	10	fixing motor (M4) lock (detected)	0: lock (sync rotation)
	11	primary charging suction fan (FM1) lock (detected)	0: lock (sync rotation)
	12	Primary charging assembly exhaust fan (FM2) lock (detected)	0: lock (sync rotation)
	13	Fixing heat exhaust fan (FM5) lock (detected)	0: lock (sync rotation)
	14	power supply motor lock (detected)	0: lock (sync rotation)
	15	Delivery cooling fan 2 (fm10)	0: lock (sync rotation)

Address	**bit**	**Item**	**Remarks**
P003	0	port 0	
	1	port 1	
	2	port 2	
	3	port 3	
	4	port 4	
	5	port 5	
	6	port 6	
	7	port 7	
	8	hard counter	1: ON
	9	hard counter	1: ON
	10	Delivery cooling fan 1 (fm6)	1: ON
	11	not used	
	12	not used	
	13	not used	
	14	not used	
	15	black developing roller bias ON signal	0: ON

Address	**bit**	**Item**	**Remarks**
P004	0	Left deck paper sensor (PS42)	1: paper present
	1	Left deck limit sensor (PS41)	1: limit state
	2	Left deck lifter sensor (PS43)	L: pickup state
	3	Left deck paper level sensor A (PS44)	1: paper present
	4	Left deck paper level sensor B (PS5)	1: paper present
	5	factory mode switch	
	6	factory mode switch	
	7	factory mode switch	
	8	ITB cleaning HP sensor (PS23)	1: sensor ON
	9	Outside heating roller HP sensor (PS21)	1: sensor ON
	10	ITB HP sensor A (PS1)	0: sensor ON
	11	ITB HP sensor B (PS30)	0: sensor ON
	12	Developing rotary solenoid sensor(PS8)	1: rotary lock (lock state: solenoid FF)
	13	Drum HP sensor (PS65)	check
	14	not used	not used
	15	not used	not used

Address	**bit**	**Item**	**Remarks**
P005	0	Cassette 3 paper sensor (PS50)	1: paper prevent
	1	Cassette 3 limit sensor (PS49)	1: limit state
	2	Cassette 3 lifter sensor (PS51)	L: pickup state
	3	Cassette 3 paper level sensor A (PS52)	0: full
	4	Cassette 3 paper level sensor B (PS53)	0: full
	5	not used	not used
	6	not used	not used
	7	not used	not used
	8	Right deck paper sensor (PS35)	1: paper present
	9	Right deck limit sensor (PS34)	1: limit state
	10	Right deck lifter sensor (PS36)	L: pickup state
	11	Right deck paper level sensor A (PS37)	1: paper present
	12	Right deck paper level sensor B (PS38)	1: paper present
	13	not used	not used
	14	not used	not used
	15	not used	not used

Address	**bit**	**Item**	**Remarks**
P006	0	Duplexing confluence sensor (PS18)	H: ON
	1	vertical path 0 sensor	H: ON
	2	Vertical path 1 sensor (PS60)	H: ON
	3	Vertical path 2 sensor (PS61)	H: ON
	4	Vertical path 3 sensor (PS62)	H: ON
	5	Vertical path 4 sensor (PS63)	H: ON
	6	Fixing inlet sensor (PS11)	H: ON
	7	Outside delivery sensor (PS13)	H: ON
	8	Cassette 4 paper sensor (PS56)	1: paper present
	9	Cassette 4 limit sensor (PS55)	1: limit state
	10	Cassette 4 lifter sensor (PS57)	L: pickup state
	11	Cassette 4 paper level sensor A (PS58)	0: full
	12	Cassette 4 paper level sensor B (PS59)	0: full
	13	not used	not used
	14	not used	not used
	15	not used	not used

Address	bit	Item	Remarks
P007	0	upper cassette size detection 0	0: active
	1	upper cassette size detection 1	0: active
	2	upper cassette size detection 2	0: active
	3	upper cassette size detection 3	0: active
	4	upper cassette size detection 4	0: active
	5	not used	
	6	fixing web solenoid connection detection	0: connected (valid only if solenoid at rest)
	7	color toner supply clutch connection detection	0: connected (valid only if solenoid at rest)
	8	Left deck pickup sensor (PS40)	1: ON
	9	Right deck pickup sensor (PS33)	1: ON
	10	Cassette 4 pickup sensor (PS54)	1: ON
	11	Cassette 3 pickup sensor (PS48)	1: ON
	12	Left deck limit sensor (PS41)	1: ON
	13	not used	
	14	Manual feed paper sensor (PS6)	1: ON
	15	Last sheet sensor (PS7)	1: ON

Address	**bit**	**Item**	**Remarks**
P008	0	shift tray connection detection	1: connected
	1	HP sensor (rear) (ps102)	1: HP detection
	2	HP sensor (front) (ps101)	1: HP detection
	3	Tray paper sensor (PS103)	0: paper present
	4	Limit sensor (front) (PS105)	0: full
	5	for R&D	
	6	for R&D	
	7	for R&D	
	8	lower cassette size detection 0	0: active
	9	lower cassette size detection 1	0: active
	10	lower cassette size detection 2	0: active
	11	lower cassette size detection 3	0: active
	12	lower cassette size detection 4	0: active
	13	for R&D	
	14	for R&D	
	15	for R&D	

Address	bit	Item	Remarks
P009	0	waste toner error detection	
	1	not used	
	2	Web length sensor (PS20)	1: web absent
	3	for R&D	
	4	for R&D	
	5	for R&D	
	6	Process unit cooling fan(FM7) lock detection	1: locked (sync rotation)
	7	motor cooling fan detection	not used
	8	black toner level sensor (TS1)	1: toner present
	9	Color toner level sensor (ps25)	1: toner present
	10	sub hopper level sensor (TS2)	1: toner present
	11	not used	
	12	Transparency sensor (rear) (ps29)	1: set
	13	Hopper assembly open/closed sensor (ps28)	0: open
	14	not used	
	15	not used	
P012	0	DDI serial transmission data	
	1	soft IPC serial transmission data	
	2	DDI serial reception data	
	3	soft IPC serial reception data	
	4	DDI serial	
	5	DDI serial	
	6	not used	
	7	not used	

Address	**bit**	**Item**	**Remarks**
P013	0	for R&D	
	1	for R&D	
	2	for R&D	
	3	for R&D	
	4	for R&D	
	5	for R&D	
	6	for R&D	
	7	for R&D	
P014	0	data on transmission to PC	
	1	data on reception for PC	
	2	flow control on communication with PC	
	3	flow control on communication with PC	
	4	not used	
	5	not used	
	6	not used	
	7	not used	
P015	0	for R&D	
	1	for R&D	
	2	DDI ready	
	3	DDI ready	
	4	ITOP_A sensor	
	5	ITOP interrupt	
	6	registration ON interrupt	
	7	rotary HP interrupt	

Address	bit	Item	Remarks
P016	0	not used	
	1	not used	
	2	not used	
	3	for R&D	
	4	for R&D	
	5	for R&D	
	6	for R&D	
	7	for R&D	
P017	0	FIN_RESET	
	1	FIN_DOWNLOAD	
	2	FIN_MODE	
	3	LWR*	
	4	HWR*	
	5	RD*	
	6	for R&D	
	7	CLK20	
P018	0	LED_ON	LED
	1	CS3*	CS for PIO [0],[1]
	2	CS2*	CS for RAM
	3	CS1*	CS for ASIC
	4	CS0*	CS for ROM
	5	not used	
	6	not used	
	7	not used	
P019	0 to 8	not used	
P020	0 to 8	not used	
P021	0 to 8	not used	
P022	0 to 8	not used	

Address	**bit**	**Item**	**Remarks**
P023	0 to 8	not used	
P024	0 to 8	not used	
P025	0 to 8	not used	
P026	0 to 8	not used	
P027	0 to 8	not used	
P028	0 to 8	not used	

15.3.3 <R-CON>

T-15-24

Indication	**bit**	**Item**	**Remarks**
P001	0	delivery reversal motor CLK	
	1	DDIS IF (OPTO0-)	0: operation prohibited
	2	DDIS IF (SPRDY)	0: operation permitted
	3	DDIS IF (OPTI0)	0: active
	4	ADF pickup motor CLK	
	5	fan power ON signal	1: ON
	6	ADF read motor CLK	
	7	size senor ON	1: ON

Indication	bit	Item	Remarks
P002	0	shift motor CLK	
	1	24V power supply monitor	0: normal
	2	not used	
	3	not used	
	4	scanner motor CLK	
	5	13V power supply monitor	0: normal
	6	Canon Denshi switch	0: Canon Denshi
	7	DDIS IF (SCPRDY)	0: operation ready
P003	0	DDIS serial communication (TxD)	-
	1	ADF serial communication (TxD)	-
	2	DDIS serial communication (RxD)	-
	3	ADF serial communication (RxD)	-
	4	LED control	1: ON
	5	ADF serial communication (SCK)	-
	6	not used	
	7	not used	
P004	0	original size detection 0	0: original present
	1	original size detection 1	0: original present
	2	original size detection 2	0: original present
	3	original size detection 3	0: original present
	4	DF connection detection	-
	5	DDIS IF (SRTS)	0: reception ready
	6	scanner motor Vref output	-
	7	not used	-

Indication	**bit**	**Item**	**Remarks**
P005	0	PC connection IF (TxD)	-
	1	PC connecting IF (RxD)	-
	2	fan lock detection signal	0: enabled
	3	DDIS IF (SCTS)	0: reception ready
	4	not used	
	5	not used	
	6	not used	
	7	not used	
P006	0	not used	-
	1	PCB check terminal	1: normal
	2	DDIS IF (OPTI1)	0: active
	3	DDIS IF (OPTO1)	0: active
	4	ADF sensor interrupt input	0: active
	5	copyboard open/closed sensor interrupt input 0	1: copyboard cover closed
	6	HP sensor interrupt input	1: HP
	7	not used	-
P007	0	address bus 16	-
	1	address bus 17	-
	2	address bus 18	-
	3	not used	-
	4	not used	-
	5	ADF pickup motor lock interrupt input	
	6	ADF pickup motor lock interrupt input	
	7	ADF delivery reversal motor lock interrupt input	

Indication	**bit**	**Item**	**Remarks**
P008	0	lamp ON signal	1: on
	1	CCD drive ON signal	1: on
	2	wait signal	0: wait
	3	L light signal	0: active
	4	H light signal	0: active
	5	read signal	0: active
	6	ADF serial communication (LOAD)	0: enabled
	7	CPU clock output	-
P009	0	not used	
	1	shading RAM chip select	0: selected
	2	work RAM chip select	0: selected
	3	ASIC registration chip select	0: selected
	4	ROM chip select	0: selected
	5	not used	
	6	not used	
	7	not used	

15.3.4 <FEEDER>

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Address	**bit**	**Indication**	**Remarks**
P001	0	read sensor	0: paper present
	1	registration sensor	1: paper present
	2	delivery reversal sensor	0: paper present
	3	ADF open/closed sensor	0: ADF open
	4	not used	
	5	not used	
	6	not used	
	7	not used	
P002	0	delivery reversal motor current setting 1	
	1	delivery reversal motor current setting 2	
	2	release motor current setting 1	
	3	release motor current setting 2	
	4	stamp solenoid drive	1: ON
	5	clutch drive	1: ON
	6	original detection LED	1: ON
	7	fan motor drive	1: ON
P003	0	pickup motor current setting CUT	
	1	read motor current setting CUT	
	2	shift motor current setting	
	3	read motor mode setting	
	4	read motor current setting 1	
	5	read motor current setting 2	
	6	pickup motor current setting 1	
	7	pickup motor current setting 2	

Address	**bit**	**Indication**	**Remarks**
P004	0	feeder cover open/closed sensor	0: feeder cover open
	1	not used	
	2	not used	
	3	not used	
	4	not used	
	5	not used	
	6	not used	
	7	stamp	0: stamp present
P005	0	not used	
	1	release HP sensor	1: released
	2	delivery reversal sensor	0: paper present
	3	post-separation sensor	0: paper present
	4	LGL sensor	1: paper present
	5	A4R/LTRR identification sensor	1: AB
	6	not used	
	7	original placement sensor	0: paper present
P006	0 to 7	for R&D	
P007	0 to 7	for R&D	
P008	0 to 7	for R&D	
P009	0 to 7	for R&D	
P010	0 to 7	for R&D	
P011	0 to 7	for R&D	

15.3.5 <SORTER>

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Address	**Controller**	**Bit**	**Indication**	**Remarks**
P001	STACKER	0	inlet feed motor A	
		1	inlet feed motor B	
		2	inlet feed motor A	
		3	inlet feed motor B	
		4	inlet feed motor switch 0	0: ON
		5	inlet feed motor switch 1	0: ON
		6	inlet feed/stack delivery motor standby signal	1: ON
		7	common solenoid ON signal	0: ON
P002	STACKER	0	punch feed motor A	
		1	punch feed motor A	
		2	punch feed motor B	
		3	punch feed motor B	
		4	punch feed motor current switch 0	1: ON
		5	punch feed motor current switch 1	1: ON
		6	tray 2 motor clock	
		7	tray 1 motor clock	
P003	STACKER	0	for R&D	
		1	for R&D	
		2	for R&D	
		3	for R&D	
		4	for R&D	
		5	for R&D	
		6	for R&D	
		7	for R&D	

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P004	STACKER	0	saddle connection detention signal	0: ON
		1	not used	
		2	swing HP sensor	1: ON
		3	upper cover open/closed sensor	0: ON
		4	front cover open/closed sensor	0: ON
		5	front cover interlock sensor	1: ON
		6	gear change HP sensor	1: ON
		7	not used	
P005	STACKER	0	for R&D	
		1	for R&D	
		2	punch transmission request signal	0: ON
		3	saddle 13V ON signal	1: ON
		4	not used	
		5	not used	
		6	not used	
		7	not used	
P006	STACKER	0	punch connection detection	0: ON
		1	not used	
		2	not used	
		3	punch motor standby	1: ON
		4	inlet sensor (IRQ0)	1: ON
		5	paper trailing edge sensor (IRQ1)	1: ON
		6	punch communication input (IRQ2)	0: ON
		7	not used	

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P007	STACKER	0	tray approach sensor	0: ON
		1	tray 2 area sensor 1	0: ON
		2	tray 2 area sensor 2	0: ON
		3	tray 2 paper sensor 3	0: ON
		4	tray 2 paper sensor	1: ON
		5	tray paper surface sensor	1: ON
		6	inlet motor clock input	
		7	stack edging clock input	
P008	STACKER	0	tray 3 paper sensor	1: ON
		1	tray 3 connection detection	0: ON
		2	upper paper surface sensor	1: ON
		3	tray 1 interlock sensor	1: ON
		4	tray 1 area sensor 1	0: ON
		5	tray 1 area sensor 2	0: ON
		6	tray 1 area sensor 3	0: ON
		7	tray 1 paper sensor	1: ON
P009	STACKER	0	tray 1 shift motor CW	0: ON
		1	tray 1 shift motor enable	1: ON
		2	tray 1 shift motor power supply switch 0	0: ON
		3	tray 1 shift motor power supply switch 1	0: ON
		4	tray 2 shift motor CW	0: ON
		5	tray 2 shift motor enable	1: ON
		6	tray 2 shift motor power supply switch 0	0: ON
		7	tray 2 shift motor power supply switch 1	0: ON

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P010	STACKER	0	not used	
		1	swing shift motor power supply switch 0	0: ON
		2	swing shift motor phase A pulse output	
		3	swing motor phase B pulse output	
		4	not used	
		5	not used	
		6	not used	
		7	not used	
P011	STACKER	0	inlet roller shift solenoid	1: ON
		1	for R&D	
		2	for R&D	
		3	buffer roller shift solenoid	1: ON
		4	feed path sensor	1: ON
		5	not used	
		6	not used	
		7	not used	
P012	STACKER	0	gear change phase A	
		1	gear change phase B	
		2	gear change motor current switch 0	0: ON
		3	gear change motor current switch 1	0: ON
		4	not used	
		5	for R&D	
		6	for R&D	
		7	for R&D	

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P013	STACKER	0	for R&D	
		1	front alignment HP sensor	1: ON
		2	front alignment HP sensor	1: ON
		3	handling tray paper sensor	1: ON
		4	trailing edge assist HP sensor	1: ON
		5	not used	
		6	not used	
		7	not used	
P014	STACKER	0	rear alignment motor phase A	
		2	rear alignment motor phase B	
		3	rear alignment motor current switch 0	0: ON
		4	not used	
		5	not used	
		6	not used	
		7	not used	
P015	STACKER	0	front alignment phase A	
		1	front alignment phase B	
		2	front alignment motor current swing 0	0: ON
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	

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Address	Controller	Bit	Indication	Remarks
P016	STACKER	0	not used	
		1	for R&D	
		2	for R&D	
		3	for R&D	
		4	for R&D	
		5	CIS power supply ON signal	1: ON
		6	for R&D	
		7	size sensor drive signal	1: ON
P017	STACKER	0	not used	
		1	24V power supply monitor signal	0: normal
		2	scanner motor drive signal	1: forward 0: reverse
		3	for R&D	
		4	for R&D	
		5	13V power supply monitor signal	0: normal
		6	not used	
		7	for R&D	
P018	STACKER	0	for R&D	
		1	for R&D	
		2	for R&D	
		3	for R&D	
		4	LED control signal	1: ON
		5	for R&D	
		6	for R&D	
		7	for R&D	

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P019	STACKER	0	not used	
		1	not used	
		2	original size detention 2	0: original present
		3	not used	
		4	not used	
		5	for R&D	
		6	for R&D	
		7	for R&D	
P020	STACKER	0-7	for R&D	
			not used	
			not used	
			not used	
			not used	
			not used	
			not used	
			not used	
P021	STACKER	0	not used	
		1	for R&D	
		2	for R&D	
		3	for R&D	
		4	ADF sensor interrupt input	0: ON
		5	copyboard cover open/closed sensor interrupt input 0	1: cover open
		6	HP sensor interrupt input	1: HP
		7	copyboard open/closed sensor interrupt input 1	1: cover open

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P022	STACKER	0	for R&D	
		1	for R&D	
		2	for R&D	
		3	for R&D	
		4	scanner motor driver power save	0: ON
		5	ADF pickup motor clock interrupt input	0/1, alternating
		6	ADF pickup motor clock interrupt input	0/1, alternating
		7	not used	
P023	STACKER	0	lamp ON signal	1: ON
		1	CIS drive ON signal	1: ON
		2	for R&D	
		3	for R&D	
		4	for R&D	
		5	for R&D	
		6	for R&D	
		7	for R&D	
P024	SADDLE	0	for R&D	
		1	not used	
		2	not used	
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P025	SADDLE	0	not used	
		1	not used	
		2	not used	
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	
P026	SADDLE	0	not used	
		1	not used	
		2	not used	
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	
P027	SADDLE	0	not used	
		1	not used	
		2	not used	
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P028	SADDLE	0	not used	
		1	not used	
		2	not used	
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	
P029	SADDLE	0	not used	
		2	not used	
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	
P030	SADDLE	0	not used	
		1	not used	
		2	not used	
		3	not used	
		4	not used	
		5	not used	
		6	not used	
		7	not used	

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Address	Controller	Bit	Indication	Remarks
P031	SADDLE	0	saddle tray paper sensor	0: ON
		1	paper positioning area paper sensor	0: ON
		2	crescent roller HP sensor	0: ON
		3	saddle delivery path sensor	0: ON
		4	saddle path (upstream) sensor	1: ON
		5	saddle path (middle) sensor	1: ON
		6	saddle path (downstream) sensor	1: ON
		7	saddle path sensor	1: ON
P032	SADDLE	0	butting motor enable signal	1: ON
		1	butting motor normal direction signal	1: ON
		2	butting motor reverse direction signal	1: ON
		3	folding roller HP sensor	1: ON
		4	front door open sensor	0: ON
		5	delivery over open detention (photo sensor)	0: ON
		6	saddle alignment HP sensor	0: ON
		7	delivery cover open 24 V down detection	1: ON
P033	SADDLE	0	inlet flapper solenoid	1: ON
		1	saddle path switch flapper 1	1: ON
		2	saddle path switch flapper 2	1: ON
		3	intermediate feed solenoid	1: ON
		4		
		5		
		6	inlet path sensor	1: ON
		7		

Address	Controller	Bit	Indication	Remarks
P034	SADDLE	0	rear staple motor normal direction	0: ON
		1	rear staple motor reverse direction	0: ON
		2	front staple motor normal direction	0: ON
		3		
		4	folding roller HP connector open detection	0: ON
		5		
		6		
		7		
P035	SADDLE	0	DIPSW_1	0: ON
		1	DIPSW_2	0: ON
		2	DIPSW_3	0: ON
		3	DIPSW_4	0: ON
		4	DIPSW_5	0: ON
		5	DIPSW_6	0: ON
		6	DIPSW_7	0: ON
		7	DIPSW_8	0: ON
P036	SADDLE	0		
		1		
		2	push switch 1	0: ON
		3	5V detection signal	0: ON
		4	24V detection signal	0: ON
		5		
		6		
		7		

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P037	SADDLE	0	POWER_ON	1: ON
		1	LED1	1: ON
		2	LED2	1: ON
		3	LED3	1: ON
		4	LEDY	0: ON
		5	TRAY_MTR_CUR	0: ON
		6	TRAY_MTR_B	0: ON
		7	TRAY_MTR_A	0: ON
P038	PUNCHER	0	DIPSW1	0: ON
		1	DIPSW2	0: ON
		2	DIPSW3	0: ON
		3	-	
		4	PCH-OUT	
		5	trailing edge sensor	1: ON
		6	punch encoder clock	
		7	punch HP sensor	0: ON
P039	PUNCHER	0	(for R&D)	
		1	(for R&D)	
		2	(for R&D)	
		3	-	
		4	-	
		5	-	
		6	-	
		7	-	

Address	**Controller**	**Bit**	**Indication**	**Remarks**
P040	PUNCHER	0	(for R&D)	
		1	(for R&D)	
		2	(for R&D)	
		3	(for R&D)	
		4	horizontal registration HP sensor	1: ON
		5	horizontal registration motor STB	0: ON
		6	punch motor CCW	0: ON
		7	punch motor CW	0: ON
P041	PUNCHER	0	-	
		1	-	
		2	-	
		3	-	
		4	DIPSW4	0: ON
		5	horizontal registration motor CUR	0: ON
		6	(for R&D)	
		7	-	
P042	PUNCHER	0	LED1	0: ON
		1	(for R&D)	
		2	(for R&D)	
		3	LED2	0: ON
		4	front cover sensor	0: ON
		5	(for R&D)	
		6	PUSHSW2	0: ON
		7	PUSHSW1	0: ON

Address	Controller	Bit	Indication	Remarks
P043	PUNCHER	0	-	
		1	-	
		2	-	
		3	-	
		4	-	
		5	upper cover sensor	0: ON
		6	-	
		7	-	

15.3.6 <MN-CON>

T-15-29

Address	bit	Indication	Remarks
P001	0	PWR1	1: normal use
	1	PWR2	1: normal use
	2	Watchdog Timer Clear	from 1 to 0 every 50 msec
	3	Clock Enable	1: normal use
	4	cooling fan ON	cooling fan control
	5	LED1008	
	6	Watchdog Enable	
	7	DDI DOWNLOAD	
P002	0 to 7	not used	
	8	open I/F control	
	9	open I/F setting	
	10	open I/F setting	
	11	for R&D	
	12	for R&D	
	3 to 15	not used	

P003	0	IP TEST	0:normal 1: Test
	1	Sync_Mask	0: Mask 1: normal
	2	SRAM Mask	0: permit; 1: prohibit
	3	SUB Clock stop	0: stop 1: run
	4	PCI(PDL,HDD) soft reset	0: Reset 1: Normal
	5	serial EEPROM CS	
	6	serial EEPROM SCK	
	7	serial EEPROM DIN	0: IPC 1: Gchip Serial
	8	coin robot serial select	0: Normal 1: Livewake
	9	DDI live wake	0: off 1: on
	10	pickup count (for coin robot assist)	
	11	delivery count (for coin robot assist)	
	12	LCD backlight control	1: ON
	13	jail SROM access	0: access permitted; 1: access prohibited
	14	parallel EEPROM write protect	0: Write 1: Protect
	15	fax SSB forced reset	0: Reset 1: Normal
P004	0	SRAM board detection	0: yes; 1: no
	1	parallel EEPROM R/B#	0: Busy; 1: Ready
	2	not used	
	3	operation enable (key SCREW)	0: permitted; 1: prohibited
	4	operation enable (CC-W)	0: permitted; 1: prohibited
	5	operation enable (coin robot)	0: permitted; 1: prohibited
	6	serial EEPROM DO	
	7	not used	
P005	0 to 7	not used	

P006	0 to 7	for R&D	
	8	open I/F control (PRDY signal)	
	9	open I/F signal	Model 0
	10	open I/F setting	Model 1
	11	not used	
	12	not used	
	13	not used	
	14	open I/F board detection	0: present; 1: absent
	15	open I/F board control (CARD) 0: ready; 1: not ready	
P007	1 to 15	for R&D	
	16	FAX OPTION	0: connected; 1: not connected
	17 to 23	for R&D	
P008	0 to 2	not used	
	3	PSCNST	printer drive signal
	4	Printer Power Ready	0: Ready; 1: not ready
	5 to 7	not used	
	8	SPRTST signal	printer start-up signal
	9	not used	
P009	0 to 2	for R&D	
	3	PPRTST signal	
	4	printer power-on	printer start-up signal
	5	not used	
	6 to 8	for R&D	
	9	SSCNST signal	
	10	Scanner Power ON	scanner drive signal
	11	Controller Power Ready	0: Ready; 1: not ready

15.4 ADJUST（Adjustment Mode）

15.4.1 COPIER

15.4.1.1 ADJ-XY

15.4.1.1.1 Overview

Adjusting the Image Read Start Point

15.4.1.1.2 <ADJ-X>

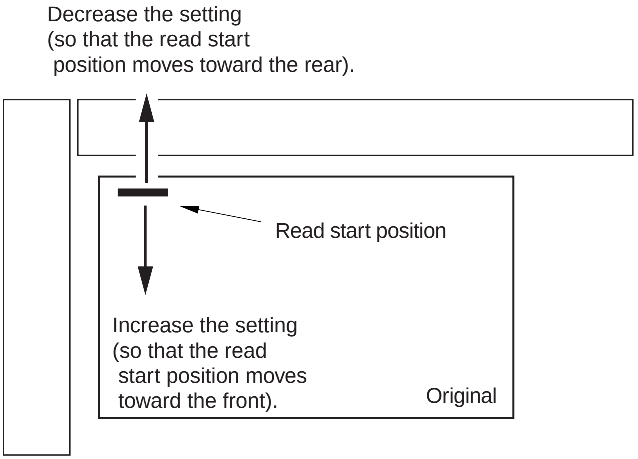
T-15-30

	Use it to adjust the scanner image leading edge position (image read start position in sub scanning direction).
Method of adjustment	- if the non-image width is larger than the indicated value, decrease the setting. - if an area outside the original is copied, increase the setting. - an increase by 1 of the setting will move the image read start position by 0.1 mm in the direction of the training edge (i.e., the image read area moves toward the trailing edge). - if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	1 to 100 [at time of shipment: factory measurement/after RAM initialization: 20]
Attention1	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.1.3 <ADJ-Y>

T-15-31

	Use it to adjust the CCD read start cell position (image read start position in main scanning direction).
Method of adjustment	- if the non-image width is larger than the indicated value, decrease the setting. - if an area outside the original is copied, increase the setting. - an increase by 1 of the setting will move the image read start position by 0.1 mm in the direction of the leading edge (i.e., the image read area will move toward the leading edge). - if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	47 to 131 [at time of shipment: factory measurement/after RAM initialization: 90]
Attention1	If you have changed the setting, be sure to record the new setting on the service label.


Decrease the setting
(so that the read start
position moves toward the rear).
Read start position
Increase the setting
(so that the read
start position moves
toward the front).
Original

F-15-16

15.4.1.1.4 <ADJ-S>

T-15-32

	Use it to enter an adjustment value for the point of measurement for scanner shading.
Method of adjustment	- a decrease by 1 of the setting will move the point of measurement for shading by 0.1 mm in the direction of the leading edge. - if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	30 to 50 [at time of shipment: factory measurement/after RAM initialization: 50]
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.1.5 <ADJ-Y-DF>

T-15-33

	Use it to adjust the main scanning points for DF SRAM reading mode.
Method of adjustment	- an increase by '1' will move the image read start position to the front by 0.1 mm. - if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	21 to 106 at time of shipment: factory adjustment value upon RAM initialization: 53
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.1.6 <STRD-POS>

T-15-34

	Use it to adjust the CCD read position for DF stream reading mode.
Method of adjustment	- an increase by '1' will move the image read position to the left by 1 mm.
	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	1 to 200 at time of shipment: factory adjustment value upon RAM initialization: 110
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2 CCD

15.4.1.2.1 Overview

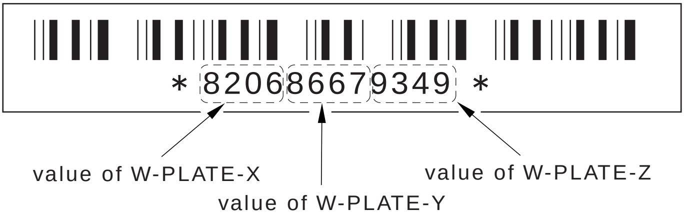
Making CCD-Related Adjustments

15.4.1.2.2 <W-PLT-X/Y/Z>

T-15-35

	Use it to enter the white level data indicated on the standard while plate.
Method of adjustment	- if you have initialized the RAM on the reader controller or if you have replaced the reader controller PCB, enter the value indicated on the service label.
	- if you have replaced the copyboard glass, enter the value indicated on the copyboard glass. (See the figure below.)

Range of adjustment	1 to 9999 [at time of shipment: factory measurement/after RAM initialization: W-PLT-X=8271 W-PLT-Y=8735 W-PLT-Z=9418



F-15-17

15.4.1.2.3 CCDU-RG

T-15-36

	Use it to correct color displacement in sub scanning direction between R and G associated with the CCD unit.
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-9 to 9 at time of shipment: factory measurement value upon RAM initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.4 CCDU-GB

T-15-37

	correction value for displacement of color in sub scanning direction for GB associated with the CCD unit
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-9 to 9 at time of shipment: factory measurement value upon RAM initialization: 0

15.4.1.2.5 FCCDU-RG

T-15-38

	Use it to correct color displacement in sub scanning direction between R and G associated with the CCD unit at time of shipment.
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-9 to 9 at time of shipment: factory measurement value upon RAM initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.6 FCCDU-GB

T-15-39

	Use it to correct color displacement in sub scanning direction between GB associated with the CCD unit at time of shipment.
Method of adjustment	- if you have initialized the RAM on the reader controller or replaced the reader controller PCB, enter the value indicated on the service label.

Range of adjustment	-9 to 9 at time of shipment: factory measurement value upon RAM initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.7 <50-RG>

T-15-40

	Use it to indicate the degree of offset (color displacement; RG) for book mode at 50% reading.
Method of adjustment	- if you have initialized the RAM on the rear controller or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-256 to 256 at time of shipment: factory measurement value upon initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.8 <50-GB>

T-15-41

	Use it to indicate the degree of offset (color displacement; GB) for book mode at 50% reading.
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label
Range of adjustment	-256 to 256 at time of shipment: factory measurement value upon RAM initialization: 0

Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.9 <100-RG>

T-15-42

	Use it to indicate the degree of offset (color displacement; RG) for book mode at 100% reading.
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller, enter the value indicated on the service label.
Range of adjustment	-256 to 256 at time of shipment: factory measurement value upon RAM initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.10 <100-GB>

T-15-43

	Use it to indicate the degree of offset (color displacement; GB) for book mode at 100% reading.
Method of adjustment	- if you have replaced the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-256 to 256 at time of shipment: factory measurement value upon RAM initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.11 <50DF-RG>

T-15-44

	Use it to indicate the degree of offset (color displacement RG) for ADF mode at 50% reading.
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-256 to 256 at time of shipment: factory measurement value upon RAM initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.12 <50DF-GB>

T-15-45

	Use it to indicate the degree of offset (color displacement; GB) for ADF mode at 50% reading.
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-256 to 256 at time of shipment: factory measurement value upon RAM initiation: 0
Attention	If you have initialized the setting, be sure to record the new setting on the service label.

15.4.1.2.13 <100DF-RG>

T-15-46

	Use it to indicate the degree of offset for color displacement (RG) when ADF mode is selected and the reading is at 100% magnification.

Making Adjustments	If you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of Adjustments	-256 to 256 at time of shipment/upon RAM Initialization: 0
Note	If you changed the setting of this service mode item, be sure to record the new setting on the service label.

15.4.1.2.14 <100DF-GB>

T-15-47

	Use it to indicate the degree of offset (color displacement; GB) for ADF mode at 100% reading.
Method of adjustment	- if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	-256 to 256 at time of shipment: factory measurement value upon RAM initialization: 0
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.15 <DFTAR-R>

T-15-48

	Use it to enter the shading target (red) for the DF (normal original read position).
Method of adjustment	- Use this mode item to enter the factory measurement if an image fault occurs (e.g., caused by soiling of the chart) after executing COPIER>FUNCTION>CCD>DF-WLVL1/DF-WLV2. - if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.

	Use it to enter the shading target (red) for the DF (normal original read position).
Range of adjustment	1 to 2047 [at time of shipment: factory measurement/after RAM initialization: 1159]
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.16 <DFTAR-G>

T-15-49

	Use it to enter the shading target (GREEN) for the DF (normal original read position).
Method of adjustment	- Use this mode item to enter the factory measurement if an image fault occurs (e.g., caused by soiling of the chart) after executing COPIER>FUNCTION>CCD>DF-WLVL1/DF-WLV2. - if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	1 to 2047 [at time of shipment: factory measurement/after RAM initialization: 1189]
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.2.17 <DFTAR-B>

T-15-50

	Use it to enter the shading target (BLUE) for the DF (normal original read position).
Method of adjustmen	- Use this mode item to enter the factory measurement if an image fault occurs (e.g., caused by soiling of the chart) after executing COPIER>FUNCTION>CCD>DF-WLVL1/DF-WLV2. - if you have initialized the RAM on the reader controller PCB or replaced the reader controller PCB, enter the value indicated on the service label.
Range of adjustment	1 to 2047 [at time of shipment: factory measurement/after RAM initialization: 1209]
Attention	If you have changed the setting, be sure to record the new setting on the service label.

15.4.1.3 LASER

15.4.1.3.1 Overview

Making Laser-Related Adjustments

15.4.1.3.2 PVE-OFST

T-15-51

	Use it to adjust the degree of offset (point of laser illumination) from the center of the laser beam.
Range of adjustment	**1600 to 600** **at time of shipment: factory adjustment value** **upon RAM initialization: 0**

15.4.1.3.3 POWER

T-15-52

	Use it to adjust the laser output (max).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**0 to 255** **at time of shipment: factory measurement value** **upon RAM initialization: 0**
Reference	This item is for factory adjustment, and must NOT be used in the field.

15.4.1.4 IMG-REG

15.4.1.4.1 Overview

Adjusting the Image Position

15.4.1.4.2 <REG-V-Y>

T-15-53

	Use it to make rough adjustment of the write start position in sub scanning direction for Y.

Method of adjustment	- a higher setting will move the pattern toward the trailing edge. - if you have initialized the RAM on the DC controller PC or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**-10 to 10 (unit: pixel)** **at time of shipment: factory measurement value** **upon RAM initialization: 0**
Reference	This item is for use at the factory only, and must NOT be used in the field.

15.4.1.4.3 <REG-V-K>

T-15-54

	Use it to make rough adjustment of the write start position in sub scanning direction for K.
Method of adjustment	- a higher setting will move the pattern toward the trailing edge. - if you have initialized the RAM on the DC controller PCB or replaced the DC controller, enter the value indicated on the service label.
Range of adjustment	**-10 to 10 (unit: pixel)** **at time of shipment: factory measurement value** **upon RAM installation: 0**
Reference	This item is for use at the factory only, and must NOT be used in the field.

15.4.1.4.4 <REG2-V-Y>

T-15-55

	Use it to make rough adjustment of the write start position in sub scanning direction for Y (2nd side in 2-sheet placement).
Method of adjustment	- a higher setting will move the pattern toward the trailing edge. - if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**-10 to 10 (unit: pixel)** **at time of shipment: factory measurement value** **upon RAM initialization: 0**
Reference	This item is for use at the factory only, and must NOT be used in the field.

15.4.1.4.5 <REG2-V-K>

T-15-56

	Use it to make rough adjustment of the write start position in sub scanning direction for K (2nd side in 2-sheet placement).
Method of adjustment	- a higher setting will move the pattern toward the trailing edge. - if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**-10 to 10 (unit: pixel)** **at time of shipment: factory measurement value** **upon RAM initialization: 0**
Reference	This item is for use at the factory only, and must NOT be used in the field.

15.4.1.4.6 <REG2-V-M>

T-15-57

	Use it to make rough adjustment of the write start position in sub scanning direction for M (2nd side in 2-sheet placement).
Method of adjustment	- a higher setting will move the pattern toward the trailing edge. - if you have initialized the RAM on the DC controller PCB or replaced the DC controller, enter the value indicated on the service label.
Range of adjustment	**-10 to 10 (unit: pixel)** **at time of shipment: factory measurement/RAM initialization: 0**
Reference	This item is for use at the factory only, and must NOT be used in the field.

15.4.1.5 DENS

15.4.1.5.1 Overview

Making Developer Density-Related Adjustments

15.4.1.5.2 <SGNL-Y>

T-15-58

	Use it to enter the toner density initial value (Y).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.

Range of adjustment	**200 to 800** **at time of shipment/upon RAM initialization: 512**

15.4.1.5.3 <SGNL-M>

T-15-59

	Use it to enter the toner density signal initial value (M).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**200 to 800** **at time of shipment/upon RAM initialization: 512**

15.4.1.5.4 <SGNL-C>

T-15-60

	Use it to enter the toner density signal initial value (C).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or have replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**200 to 800** **at time of shipment/upon RAM installation: 512**

15.4.1.5.5 <REF-Y>

T-15-61

	Use it to enter the toner density reference signal (Y).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.

Range of adjustment	**462 to 562 (at time of shipment/upon RAM initialization: 512**

15.4.1.5.6 <REF-M>

T-15-62

	Use to enter the toner density signal reference value (M).
Method of adjustment	If you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**462 to 562 (at time of shipment/upon RAM initialization: 512)**

15.4.1.5.7 <REF-C>

T-15-63

	Use it to enter the toner density signal reference value (C).
Method of adjustment	- if you initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**462 to 562 (at time of shipment/upon RAM initialization: 512**

15.4.1.5.8 <PTOFST-Y>

T-15-64

	Use it to enter the correction value of the Y laser output for ATR control.
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**-48 to 48 (at time of shipment/upon RAM initialization: 0)**

15.4.1.5.9 <PTOFST-M>

T-15-65

	Use it to enter the correction value of the M laser output for ATR control.
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**-48 to 48 (at time of shipment/upon RAM initialization: 0)**

15.4.1.5.10 <PTOFST-C>

T-15-66

	Use it to enter the correction value of the C laser output for ATR control.
Method of adjustment	- if you have initialized the RAM on the DC controller or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**-48 to 48 (at time of shipment/upon RAM initialization: 0)**

15.4.1.5.11 <P-SGNL-Y>

T-15-67

	Use it to adjust the density of toner on the intermediate transfer belt for INIT execution (Y).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**200 to 800 (at time of shipment/upon RAM initialization: 500)**

15.4.1.5.12 <P-SGNL-M>

T-15-68

	Use it to adjust the density of toner on the intermediate transfer belt for INIT execution (M).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**200 to 800 (at time of shipment/upon RAM initialization: 500)**

15.4.1.5.13 <P-SGNL-C>

T-15-69

	Use it to adjust the density of toner on the intermediate transfer belt for INIT execution (C).
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label.
Range of adjustment	**200 to 800 (at time of shipment/upon RAM initialization: 500**

15.4.1.6 BLANK

15.4.1.6.1 Overview

Adjusting the Non-Image Width

15.4.1.6.2 <BLANK-T>

T-15-70

	Use it to enter the adjustment value for the non-image width (leading edge)
Method of adjustment	- Enter the value indicated on the service label if you have initialized the RAM on the main controller PCB or if you have replaced the SRAM PCB.
Range of adjustment	0 to 1000 [at time of shipment: factory measurement /after RAM initialization: +94]

15.4.1.6.3 <BLANK-L>

T-15-71

	Use it to enter the adjustment value for the non-image width (left edge).
Method of adjustment	- Enter the value indicated on the service label if you have initialized the RAM on the main controller PCB or if you have replaced the SRAM PCB.
Range of adjustment	**0 to 1000** **[at time of shipment: factory measurement /after RAM initialization: +59]**

15.4.1.6.4 <BLANK-R>

T-15-72

	Enter the adjustment value for the non-image width (right edge).
Method of adjustment	- Enter the value indicated on the service label if you have initialized the RAM on the main controller PCB or if you have replaced the SRAM PCB.
Range of adjustment	**0 to 1000** **[at time of shipment: factory measurement/after RAM initialization: +59]**

15.4.1.6.5 <BLANK-B>

T-15-73

	Use it to enter the adjustment value for the non-image width (trailing edge).
Method of adjustment	- Enter the value indicated on the service label if you have initialized the RAM on the main controller PCB or if you have replaced the SRAM PCB.
Range of adjustment	0 to 1000 [at time of shipment: factory measurement /after RAM initialization: +47]

15.4.1.6.6 <BLANK-C1>

T-15-74

	Use it to set the leading edge margin for the right deck.
Method of adjustment	The value herein will be used to affect the value of BLANK-T.
Range of adjustment	**-35 to 35 (unit: 0.1 mm)** **at time of shipment: factory measurement /upon RAM initialization: 0**

15.4.1.6.7 <BLANK-C2>

T-15-75

	Use it to set the leading edge margin for the right deck.
Method of adjustment	The value herein will be used to affect the value of BLANK-T.
Range of adjustment	**-35 to 35 (unit: 0.1 mm)** **at time of shipment: factory measurement value** **upon RAM initialization: 0**

15.4.1.6.8 <BLANK-C3>

T-15-76

	use it to set the leading margin for the right deck.
Method of adjustment	The value herein will be used to affect the value of BLANK-T.
Range of adjustment	**-35 to 35 (unit: 0.1 mm)** **at time of shipment: factory measurement value** **upon RAM initialization: 0**

15.4.1.6.9 <BLANK-C4>

T-15-77

	Use it to set the leading edge margin for the right deck.
Method of adjustment	The value herein will be used to affect the value of BLANK-T.
Range of adjustment	**-35 to 35 (unit: 0.1 mm)** **at time of shipment: factory measurement value** **upon RAM initialization: 0**

15.4.1.6.10 <BLANK-PD>

T-15-78

	Use it to set the leading edge margin for the optional deck.
Method of adjustment	The value herein will be used to affect the value of BLANK-T.
Range of adjustment	**-35 to 35 (unit: 0.1 mm)** **at time of shipment: factory measurement value** **upon RAM initialization: 0**

15.4.1.7 V-CONT

15.4.1.7.1 Overview

Adjusting the Photosensitive Drum Surface Potential Contrast

15.4.1.7.2 <EPOTOFST>

T-15-79

	Set it to adjust the potential offset value.
Range of adjustment	**-300 to 300 (unit: 0.1 V)** **at time of shipment/upon RAM initialization: 0**

15.4.1.8 PASCAL

15.4.1.8.1 Overview

Adjusting Auto Gradation Correction

15.4.1.8.2 <OFST-P-Y>

T-15-80

	Use it to apply an offset value on the text print read signal (yellow) for PASCAL control executed at time of auto gradation correction (full correction).

Method of adjustment	- A higher value darkens the image after auto gradation correction (full correction).
Range of adjustment	**-128 to +128** **[at time of shipment/after RAM initialization: 0]**

15.4.1.8.3 <OFST-P-M>

T-15-81

	Use it to apply an offset value on the text print read signal (magenta) for PASCAL control executed at time of auto gradation correction (full correction).
Method of adjustment	- A higher value darkens the image after auto gradation correction (full correction).
Range of adjustment	**-128 to +128** **[at time of shipment/after RAM initialization: 0]**

15.4.1.8.4 <OFST-P-C>

T-15-82

	Use it to apply an offset value on the text print read signal (cyan) for PASCAL control executed at time of auto gradation correction (full correction).
Method of adjustment	- A higher value darkens the image after auto gradation correction (full correction).
Range of adjustment	**-128 to +128** **[at time of shipment/after RAM initialization: 0]**

15.4.1.8.5 <OFST-P-K>

T-15-83

	Use it to apply an offset value on the test print read signal (black) for PASCAL control executed at time of auto gradation correction (full correction).
Method of adjustment	- A higher value darkens the image after auto gradation correction (full correction).
Range of adjustment	**-128 to +128** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9 COLOR

15.4.1.9.1 Overview

Adjusting Color Balance

15.4.1.9.2 <ADJ-Y>

T-15-84

	Use it to adjust the color balance used in user mode (yellow).
Method of adjustment	- a higher value darkens the image. - a lower value lightens the image.
Range of adjustment	**-8 to +8** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9.3 <ADJ-M>

T-15-85

	Use it to adjust the color balance used in user mode (magenta).
Method of adjustment	- a higher value darkens the image. - a lower value lightens the image.
Range of adjustment	**-8 to +8** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9.4 <ADJ-C>

T-15-86

	Use it to adjust the color balance used in user mode (cyan).
Method of adjustment	- a higher value darkens the image. - a lower value lightens the image.
Range of adjustment	**-8 to +8** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9.5 <ADJ-K>

T-15-87

	Use it to adjust the color balance of the user (black).
Method of adjustment	- a higher value darkens the image. - a lower value lightens the image.
Range of adjustment	**-8 to +8** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9.6 <OFST-Y>

T-15-88

	Use it to adjust the color balance and the light area density (yellow).
Method of adjustment	A lower value decreases fogging.
Range of adjustment	**-32 to +32** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9.7 <OFST-M>

T-15-89

	Use it to adjust the color balance and the light area density (magenta).
Method of adjustment	A lower value decreases fogging.
Range of adjustment	**-32 to +32** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9.8 <OFST-C>

T-15-90

	Use it to adjust the color balance and the light area density (cyan).
Method of adjustment	A lower value decreases fogging.
Range of adjustment	**-32 to +32** **[at time of shipment/after RAM initialization: 0]**

15.4.1.9.9 <OFST-K>

T-15-91

	Use it to adjust the color balance and the light area density (black).
Method of adjustment	A lower value decreases fogging.
Range of adjustment	**-32 to +32** **[at time of shipment/after RAM initialization: 0]**

15.4.1.10 HV-PRI

15.4.1.10.1 Overview

Making Adjustments for the Primary Charging Assembly High-Voltage Output According to Conditions

15.4.1.10.2 <PRIMARY>

T-15-92

	Use it to adjust the primary charging current.
Range of adjustment	**0 to 1400 (unit: yA)** **at time of shipment: factory adjustment value** **upon RAM initialization: 1099**

15.4.1.10.3 <GRID>

T-15-93

	Use it to adjust the primary charging assembly grid bias.

Range of adjustment	0 to 752 (unit: V) at time of shipment: factory adjustment value upon RAM initialization: 752

15.4.1.11 HV-TR

15.4.1.11.1 Overview

Adjusting the Transfer Charging Assembly High-Voltage Output According to Conditions

15.4.1.11.2 <PRE-TR>

T-15-94

	Use it to adjust the current for the pre-transfer charging assembly.
Range of adjustment	**-200 to 200 (unit: 2.0 yA)** **at time of shipment: factory adjustment value** **upon RAM initialization: 0**

15.4.1.11.3 <1TR-GAIN>

T-15-95

	Use it to adjust the gain for the primary transfer current measurement.
Method of adjustment	- if you have initialized the RAM of the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have replaced the high-voltage PCB, enter the value indicated on the label attached to the PCB.

Range of adjustment	**0 to 1000** **at time of shipment: factory adjustment value /upon RAM initialization: 492**
Reference	This item is for use at the factory only, and must NOT be used in the field.

15.4.1.11.4 <1TR-OFST>

T-15-96

	Use it to adjust the offset value of the primary transfer current measurement.
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have replaced the high-voltage PCB, enter the value indicated on the label attached to the PCB.
Range of adjustment	-1000 to 0 at time of shipment: factory adjustment value upon RAM initialization: -442
Reference	This item is for use at the factory only, and must NOT be used in the field.

15.4.1.11.5 <1TR-CGAI>

T-15-97

	Use it to correct the constant current for the primary transfer high-voltage PCB. (slope)

Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have replaced the high-voltage PCB, enter the value indicated on the label attached to the PCB.
Range of adjustment	**0 to 200** **at time of shipment: factory measurement /upon RAM initialization: 118**

15.4.1.11.6 <1TR-COFS>

T-15-98

	Use it to correct the constant current for the primary transfer high-voltage PCB. (intercept)
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have replaced the high-voltage PCB, enter the value indicated on the label attached to the PCB.
Range of adjustment	**-200 to 0 (unit: 0.1 yA)** **at time of shipment: factory measurement /upon RAM initialization: -102**

15.4.1.11.7 <1TR-GAI2>

T-15-99

	Use it to correct the constant voltage output for the transfer high-voltage PCB. 2 (slope)

Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have replaced the high-voltage PCB, enter the value indicated on the label.
Range of adjustment	**0 to 1000** **at time of shipment: factory adjustment value** **upon RAM initialization: 492**

15.4.1.11.8 <1TR-OFS2>

T-15-100

	Use it to correct the constant voltage output for the primary transfer high-voltage PCB 2. (intercept)
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have replaced the high-voltage PCB, enter the value indicated on the label attached on the PCB.
Range of adjustment	**-100 to 0 (unit: V)** **at time of shipment: factory adjustment value** **upon RAM initialization: -442**

15.4.1.12 FEED-ADJ

15.4.1.12.1 Overview

Making Feeding System-Related Adjustments

15.4.1.12.2 <REGIST>

T-15-101

	Use it to adjust the timing at which the registration roller clutch goes on.
Method of adjustment	- An increase of '1' will move the image toward the leading edge of paper by 0.1 mm.
	- Enter the value indicated on the service lable if you have initialized the RAM on the DC controller PCB or if you have replaced the DC controller PCB.
Range of adjustment	-50 to 50 (unit: 0.1 mm) [at time of shipment: factory adjustment value/after RAM initialization: 0]

15.4.1.12.3 <ADJ-REFE>

T-15-102

	Use it to adjust the horizontal adjustment for duplexing (for factory use).
Method of adjustment	**- an increase of '1' will move the image on the 2nd side to move toward the rear by 0.1 mm.**
Range of adjustment	**-100 to 100** **at time of shipment: factory adjustment value** **upon RAM initialization: 0**

15.4.1.12.4 <BLK-SML2>

T-15-103

	Use it to adjust the left/right margin on the 2nd side for small size.
Method of adjustment	**- an increase of '1' will make the left-right margin on the 2nd side longer by 0.1 mm.**
Range of adjustment	**-50 to +50 (unit: 0.1 mm)** **at time of shipment: factory adjustment value** **upon RAM initialization: -15** **at time of shipment: factory adjustment value** **upon RAM initialization: 0**

15.4.1.13 CST-ADJ

15.4.1.13.1 Overview

Making Pickup System-Related Adjustments

15.4.1.13.2 <MF-A4R>

T-15-104

	Use it to enter the paper width basic value for the manual feed tray (A4R).
Method of adjustment	- Enter the value indicated on the service label if you have initialized the RAM on the DC controller PCB or if you have replaced the DC controller PCB. - If you have replaced the paper width detecting VR or if you are registering a value newly, be sure to execute the following in service mode: FUNCTION>CST.
Range of adjustment	0 to 255 [at time of shipment: factory adjustment value/after RAM initialization: 125]

15.4.1.13.3 <MF-A6R>

T-15-105

	Use it to enter the paper width basic value for the manual feed tray (A6R).
Method of adjustment	- Enter the value indicated on the service label if you have initialized the RAM on the DC controller PCB or if you have replaced the DC controller PCB. - If you have replaced the paper width detecting VR or if you are registering a value newly, be sure to execute the following in service mode: FUNCTION>CST.
Range of adjustment	0 to 255 [at time of shipment: factory adjustment value/after RAM initialization: 193]

15.4.1.13.4 <MF-A4>

T-15-106

	Enter the paper width basic value for the manual feed tray (A4).
Method of adjustment	- Enter the value indicated on the service label if you have initialized the RAM on the DC controller PCB or if you have replaced the DC controller PCB. - If you have replaced the paper width detecting VR or if you are registering the value newly, be sure to execute the following in service mode: FUNCTION>CST.
Range of adjustment	0 to 255 [at time of shipment: factory adjustment value/after RAM initialization: 42]

15.4.1.14 MISC

15.4.1.14.1 Overview

Making Other Adjustments

15.4.1.14.2 <SEG-ADJ>

T-15-107

	Use it to adjust the separation level used between text and photo in text/photo/map mode.
Method of adjustment	- If you want the machine to identify an original to be a photo original, increase the setting. - If you want the machine to identify an original to be a text original, decrease the setting.
Range of adjustment	**-4 to 4 [at time of shipment/after RAM initialization: 0]**

15.4.1.14.3 <K-ADJ>

T-15-108

	Use it to adjust the black recognition level for black character processing.
Method of adjustment	- If you want the machine to identify a character as a black character, increase the setting.
Range of adjustment	**-3 to 3 [at time of shipment/after RAM initialization: 0]**

15.4.1.14.4 <ATM>

T-15-109

	Use it to set the environment in respect of atmospheric pressure.
Range of adjustment	0 to 2 (at time of shipment/upon RAM initialization: 0)

15.4.1.14.5 <ACS-ADJ>

T-15-110

	Use it to adjust the color recognition level for ACS mode.
Method of adjustment	- If you want the machine to identify an original to be a black-and-white original, increase the setting. - If you want the machine to identify an original as a colored original, decrease the setting.
Range of adjustment	**-3 to 3 [at time of shipment/after RAM initialization: 0]**

15.4.1.14.6 <WT-ER-LV>

T-15-111

	Use it to set a threshold value referred to when issuing an error message in response to a waste toner box full condition. **An error cover (E013) will be indicated when a specific number of prints have been printed after the value indicated in WT-FL-LV has been reached.**
setting: (number of prints)	0:1 image 1:20000 image 2:40000 image 3:60000 image estimates at a color ratio of 10% and image duty of 5%. varies depending on the color ratio/image duty. at time of shipment: factory adjustment value upon RAM initialization: 2

15.4.1.14.7 <WT-FL-LM>

T-15-112

	Use it to set a threshold for issuing an alert when the waste toner box is becoming full. **Use it to set a threshold for detection of a waste toner box error.**
	Use it to set a threshold referred to when issuing a pre-alert message in relation to the amount of waste toner in the waste toner box (intended for the user).
	Use it to set a value referred to when issuing an alert on the User screen.
setting: (number of prints)	0: 80000 image 1: 140000 image 2: 210000 image 3: 320000 image 4: 460000 image estimates at a color ratio of 10% and image duty of 5%. varies depending on the color ratio/image duty. at time of shipment: factory adjustment value upon RAM initialization: 2

15.4.2 FEEDER

15.4.2.1 <DOCST>

T-15-113

	Adjusting the Original Image Leading Edge
Method of adjustment	A higher setting will delay the image leading edge timing.
Range of adjustment	**-50 to 50 (unit: 0.1mm) [at time of shipment/after RAM initialization: 0]**

15.4.2.2 <LA-SPEED>

T-15-114

	Adjusting the document feeding speed at the time of stream reading from the feeder
Method of adjustment	The speed becomes faster (image is reduced) by increasing setting value.
Range of adjustment	**-30 to 30 (unit: 0.1%) [at time of shipment: factory adjustment value/after RAM initialization: 0]**

15.4.3 SORTER

15.4.3.1 Overview

Making Finisher-Related Adjustments

15.4.3.2 <PNCH-HLE>

T-15-115

	Use it to adjust the distance from the paper edge to the punch hole.
Range of adjustment	-4to 2 at time of shipment/upon RAM initialization: 512

15.4.4 ADJUST （Adjustment Mode）Level2

15.4.4.1 COPIER

15.4.4.1.1 LASER

LPWR-YMC

T-15-116

	Use it to set the laser power for when potential control is off (Y/M/C).
Method of adjustment	- set the laser power for Y/M/C with potential control off.
Range of adjustment	0 to 255 at time of shipment: factory adjustment value upon RAM initialization: 112

LPWR-3

T-15-117

	Use it to set the laser power for when potential control is off (feed speed at 1/3).
Method of adjustment	- set the laser power (at feed speed 1/3) with potential control off.
Range of adjustment	0 to 255 at time of shipment: factory adjustment value upon RAM initialization: 37

LPWR-2

T-15-118

	Use it to set the laser power for when potential control is off (at feed speed 1/3).
Method of adjustment	- set the laser power (at feed speed 1/3) with potential control off.
Range of adjustment	0 to 255 at time of shipment: factory adjustment value upon RAM initialization: 74

15.4.4.1.2 DENS

<HLMT-PTY>

Use it to set an upper limit to patch target density correction (Y).
range of adjustment: -20 to 20 (at time of shipment/upon RAM initialization: 0)
If possible, do not use it as long as machine operation is normal.

<HLMT-PTM>

Use it to set an upper limit to patch target density correction (M).
rage of adjustment: -20 to 20 (at time of shipment/RAM initialization: 0)
If possible, do not use it as long as machine operation is normal.

<HLMT-PTC>

Use to set an upper limit to patch target density correction (C).
range of adjustment: -20 to 20 (at time of shipment/upon RAM initialization: 0)
If possible, do not use it as long as machine operation is normal.

<LLMT-PTY>

Use it to set a lower limit to patch target density correction (Y).
range of adjustment: -20 to 20 (at time of shipment/upon RAM initialization: 0)
If possible, do not use it as long as machine operation is normal.

<LLMT-PTM>

Use it to set a lower limit to path target density correction (M).
range of adjustment: -20 to 20 (at time of shipment/upon RAM initialization: 0)

If possible, do not use it as long as machine operation is normal.

<LLMT-PTC>

Use it to set a lower limit to patch target density correction (C).

range of adjustment: -20 to 20 (at time of shipment/upon RAM initialization: 0)

If possible, do not use it as long as machine operation is normal.

<DMAX-Y>

Use it to set an offset value for the Y density control target value.

Method of Adjustment

Set an offset value for the Y density control target value while in 2D-MAX control.

range of settings: -8 to 8

at time of shipment/upon RAM initialization: 0

<DMAX-M>

Use it to set an offset value for the M density control target value.

Method of Adjustment

Set an offset value for the Y density control value while in 2D-MAX control.

range of settings: -8 to 8

at time of shipment/upon RAM initialization: 0

<DMAX-C>

Use it to set an offset value for the C density control target value.

Method of Adjustment

Set an offset value for the Y density control target value while in 2D-MAX control.

range of settings: -8 to 8

at time of shipment/upon RAM initialization: 0

P-TG-Y

Use it to set an offset value for the ATR control target value (Y).

Method of Adjustment

Set an offset value for the target value of the Y toner while in ATR control.

range of settings: -108 to 108

at time of shipment/upon RAM initialization: 0

P-TG-M

Use it to set an offset value for ATR control target value (M).
Method of Adjustment
Set an offset value for the target value of the Y toner density while in ATR control.
range of settings: -108 to 108
at time of shipment/upon RAM initialization: 0
P-TG-C

Use it to set an offset value for the target value of the Y toner density while in ATR control.
range of settings: -108 to 108
at time of shipment/upon RAM initialization: 0

15.4.4.1.3 V-CONT

<VCONT-Y>

T-15-119

	Use it to adjust the target contrast potential (yellow).
Method of adjustment	A higher setting causes the images to be darker.
Range of adjustment	-50 to +50 (unit: 10 V) [at time of shipment/after RAM initialization: 0]
Attention	Avoid its use as much as possible if the operation is normal.

<VCONT-M>

T-15-120

	Use it to adjust the target contrast potential (magenta).
Method of adjustment	A higher setting causes the images to be darker.

	Use it to adjust the target contrast potential (magenta).
Range of adjustment	-50 to +50 (unit: 10 V) [at time of shipment/after RAM initialization: 0]
Attention	Avoid its use as much as possible if the operation is normal.

<VCONT-C>

T-15-121

	Use it to adjust the target contrast potential (cyan).
Method of adjustment	A higher setting causes the images to be darker.
Range of adjustment	-50 to +50 (unit: 10 V) [at time of shipment/after RAM initialization: 0]
Attention	Avoid its use as much as possible if the operation is normal.

<VCONT-K>

T-15-122

	Use it to adjust the target contrast potential (K).
Method of adjustment	- a higher setting will make the image darker.
Range of adjustment	U/M/C: -30 to +30 (unit: 10 V) K: -5 to + 5 at time of shipment/upon RAM initialization: 0
Attention	- if possible, do not use it as long as machine operation is normal.

<VBACK-Y>

T-15-123

	Use it to adjust the fogging potential (Y).
Method of adjustment	- a higher setting will serve to reduce following.
Range of adjustment	Y/M/C: -30 to +30 (unit: 5V) at time of shipment/upon RAM initialization: 0
Attention	- if possible, do not use it as long as machine operation is normal.

<VBACK-M>

T-15-124

	Use it to adjust the potential (M) used to remove fogging.
Method of adjustment	- a higher setting will serve to reduce fogging.
Range of adjustment	Y/M/C: -30 to +30 (unit: 5V) at time of shipment/upon RAM initialization: 0
Attention	- if possible, do not use it as long as machine operation is normal.

<VBACK-C>

T-15-125

	Use it to adjust the potential (C) used to remove fogging.
Method of adjustment	- a higher setting will serve to reduce fogging.
Range of adjustment	UY/M/C: -30 to +30 (unit: 5V) at time of shipment/upon RAM initialization: 0
Attention	if possible, do not use it as long as machine operation is normal.

<VBACK-K>

T-15-126

	Use it to adjust the potential (K) used to remove fogging.
Method of adjustment	- a higher setting will serve to reduce fogging.
Range of adjustment	Y/M/C: -30 to +30 (unit: 5 V) at time of shipment/upon RAM initialization: 0
Attention	- if possible, do to use it as long as machine operation is normal.

15.4.4.1.4 COLOR

<LD-OFS-Y>

Use it to adjust the color balance for the low density range (yellow).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.

<LD-OFS-M>

Use it to adjust the color balance for the low density range (magenta).
range of adjustment : -8 to + 8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.

<LD-OFS-C>

Use it to adjust the color balance for the low density range (cyan).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.

<LD-OFS-K>

Use it to adjust the color balance of the low density range (black).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use if the operation is normal.

<MD-OFS-Y>

Use it to adjust heat color balance for the medium density range (yellow).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.
<MD-OFS-M>

Use it to adjust the color balance for the medium density range (magenta).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.
<MD-OFS-C>

Use it to adjust the color balance of the medium density range (cyan).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.
<MD-OFS-K>

Use it to adjust the color balance of the medium density range (black).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.
<HD-OFS-Y>

Use it to adjust the color balance for the high-density range (yellow).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.
<HD-OFS-M>

Use it to adjust the color balance for the high density range (magenta).
range of adjustment: -8 to + 8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.
<HD-OFS-C>

Use it to adjust the color balance for the high density range (cyan).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.

<HD-OFS-K>

Use it to adjust the color balance for the high density range (black).
range of adjustment: -8 to +8 [at time of shipment/after RAM initialization: 0]
Avoid its use as much as possible if the operation is normal.

15.4.4.1.5 HV-PRI

<GRID-2>

T-15-127

	Use it to adjust the gain of the primary charging current measurement value.
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have recycled the high-voltage PCB, enter the value indicated on the label attached to the PCB.
Range of adjustment	**0 to 00** **at time of shipment: factory adjustment value** **upon RAM initialization: 498**
Note	- This item is for use at the factory, and must NOT be used in the field.

<GRID-3>

T-15-128

	Use it to adjust the offset for the primary charging current measurement value.
Method of adjustment	- if you have initialized the RAM on the DC controller PCB or replaced the DC controller PCB, enter the value indicated on the service label. - if you have replaced the high-voltage PCB, enter the value indicated on the label attached to the PCB.

Range of adjustment	**0 to 900** **at time of shipment: factory adjustment value** **upon RAM initialization: 498**
Note	- This item is for use at the factory, and must NOT be used in the field.

<HVRATE-3>

T-15-129

	Use it to adjust the parameter settings for primary charging bias/laser power (at feed speed 1/3).
Method of adjustment	- adjust the parameter setting for the primary charging bias/laser power for when 1/3 feed speed is used.
Range of adjustment	**0 to 100 (in increments of 1)** **at time of shipment/upon RAM initialization: 33**

<HVRATE-2>

T-15-130

	Use it to adjust the parameter setting for primary charging bias/laser power (at feed speed 2/3).
Method of adjustment	- adjust the parameter setting for the primary charging bias/laser power for when 2/3 feed speed is in use.
Range of adjustment	**0 to 100 (in increments of 1)** **at time of shipment/upon RAM initialization: 33**

15.4.4.1.6 HV-TR

<2TR-TGT1 to 8>

T-15-131

	Use it to set an offset value used in relation to the secondary transfer ATVC target current level.
Method of Adjustment	When the machine's operation mode matches the particulars of the settings of TR-ENV, TR-PAPER, TR-CLR, and TR-DUP, the secondary ATVC target current level will be offset according to the setting made using this service mode item.
Settings	-10 to 10 (unit: 2 yA) at time of shipment/upon RAM initialization: 0
Reference	The following 6 items make up a single set of items: 2TR-TGT, 2TR-SHR, TR-PAPER, TR-ENV, TR-CLR, TR-DUP.

<2TR-SHR1 to 8>

T-15-132

	Use it to set an offset value for secondary ATVC.
Method of Adjustment	When the machine's operation mode matches the particulars of the settings of TR-ENV, TR-PAPER, TR-CLR, and TR-DUP, the secondary ATVC voltage will be offset according to the setting made using this service mode item.
Settings	-10 to 10 (unit: 100V) at time of shipment/upon RAM initialization: 0
Reference	The following 6 items make up a single set of items: 2TR-TGT, 2TR-SHR, TR-PAPER, TR-ENV, TR-CLR, TR-DUP.

<TR-PPR1 to 8>

T-15-133

	Use it to enter an offset value against the secondary transfer ATVC setting if necessary in response to a complaint from the user.

settings	selection of paper type for cassette 1 Settings: 1, plain paper; 2, recycled paper; 3, colored paper; 4, punched paper; 5, heavy paper 1; 6, heavy paper 2; 7, heavy paper 3; 8, transparency; 9, tracing paper; 10, postcard; 11, 2-pane postcard; 12, 4-pane postcard; 13, label sheet at time of shipment/upon RAM initialization: 1
Reference	The following 6 items make up a single set: 2TR-TGT, 2TR-SHR, TR-PAPER, TR-ENV, TR-CLR, TR-DUP

<TR-ENV1 to 8>

T-15-134

	Use it to make environmental settings for secondary transfer ATVC.
	1: low humidity; 2: normal humidity; 3: high humidity
Reference	The following 6 items are grouped as a single set: 2TR-TGT, 2TR-SHR, TR-PPR, TR-ENV, TR-CLR, TR-DUP.

<TR-CLR1 to 8>

T-15-135

	Use it to make color mode settings for secondary transfer ATVC.
	1: Bk mode 2: C mode
Reference	The following 6 items are grouped as a single set: 2TR-TGT, 2TR-SHR, TR-PPR, TR-ENV, TR-CLR, TR-DUP.

<TR-DUP1 to 8>

T-15-136

	Use it to make simplex/duplex pickup mode settings for secondary transfer ATVC. 1: single-sided; 2: auto double-sided; 3: manual double-sided
Reference	The following 6 items are grouped as a single set: 2TR-TGT, 2TR-SHR, TR-PPR, TR-ENV, TR-CLR, TR-DUP.

<1TR-TGY>

T-15-137

	Use it to adjust the primary transfer ATVC target current offset value (Y).
Range of adjustment	-10 to 10 (unit: 0.5 yA) at time of shipment/upon RAM initialization: 0

<1TR-TGM>

T-15-138

	Use it to adjust the primary transfer ATVC target offset value (M).
Range of adjustment	-10 to 10 (unit: 0.5 yA) at time of shipment: factory adjustment value upon RAM initialization: 0

<1TR-TGC>

T-15-139

	Use it to adjust the primary transfer ATVC target current offset value (C).

Range of adjustment	-10 to 10 (unit: 0.5 yA) at time of shipment: factory adjustment value upon RAM initialization: 0

<1TR-TGK1>

T-15-140

Use it to adjust the primary transfer ATVC target current offset value (Bk, mono).

Range of adjustment	-10 to 10 (unit: 0.5 yA) at time of shipment: factory adjustment value upon RAM initialization: 0

<1TR-TGK4>

T-15-141

Use it to adjust the primary transfer ATVC target current offset value (Bk, 4C).

Range of adjustment	-10 to 10 (unit: 0.5 yA) at time of shipment: factory adjustment value upon RAM initialization: 0

<1EL>

T-15-142

Use it to set the primary transfer static eliminator bias level.
- Check the bias level using DISPLAY>HV-STS>1EL; then, use this mode to set the appropriate bias level.

Range of adjustment	-4000 to 0 (unit: V) at time of shipment/upon RAM initialization: 0

<2EL>

T-15-143

	Use it to set the primary transfer static eliminator bias. - check the bias level using DISPLAY>HV-STS>2EL; then, set the appropriate bias level.
Range of adjustment	-4000 to 0 (unit: V) at time of shipment/upon RAM initialization: 0

<1TR-STS1>

T-15-144

	Use it to set the offset value (normal speed) for the primary sheet-to-sheet target current.
Range of adjustment	-10 to 10 (unit: 2 yA) at time of shipment/upon RAM initialization: 0

<1TR-STS2>

T-15-145

	Use it to set the offset value (1/3 speed) for the primary sheet-to-sheet target current.
Range of adjustment	-10 to 10 (unit: 2 yA) at time of shipment/upon RAM initialization: 0

<1TR-STS3>

T-15-146

	Use it to set the offset value (2/3 speed) for the primary transfer sheet-to-sheet target value.
Range of adjustment	-10 to 10 (unit: 2 yA) at time of shipment/upon RAM initialization: 0

<PRE-TR-Y>

T-15-147

	Use it to adjust the current (Y) for the pre-transfer charging assembly. - set the current offset value (Y) of the pre-transfer charging assembly.
Range of adjustment	range of settings: -200 to 200 (in increments of 1) at time of shipment/upon RAM initialization; 0

<PRE-TR-M>

T-15-148

	Use it to adjust the current (Y) for the pre-transfer charging assembly. - Set the offset value (M) for the pre-transfer charging assembly.
Range of adjustment	range of settings: -200 to +200 (in increments of 1) at time of shipment/upon RAM initialization; 0

<PRE-TR-C>

T-15-149

	Use it to adjust the current level (Y) for the pre-transfer charging assembly. Use it to set the current offset value (C) for the pre-transfer charging assembly.
Range of adjustment	range of settings: -200 to +200 (may be in units of 1's) at time of shipment/upon RAM initialization: 0

<POSTSW-Y>

T-15-150

	Use it to adjust the current (Y) of the pre-transfer charging assembly. - turn on or off the switch (Y) for the Y pre-transfer charging assembly to enable or disable the color Y for the pre-transfer charging assembly.
Settings	0: disable; 1: enable at time of shipment/upon RAM initialization: 0

<POSTSW-M>

T-15-151

	use it to adjust the current (Y) of the pre-transfer charging assembly. - turn on or off the switch (M) to enable or disable the color Y for the pre-transfer charging assembly.
Settings	0: disable; 1: enable at time of shipment/upon RAM initialization; 0

<POSTSW-C>

T-15-152

	Use it to adjust the current (Y) of the pre-transfer charging assembly. - turn on or off the switch (C) of the Y pre-transfer charging assembly to enable or disable the color Y for the pre-transfer charging assembly.
Settings	0: disable; 1: enable at time of shipment/upon RAM initialization: 0

<POSTSW-K>

T-15-153

	Use it to adjust the current (Y) of the pr-transfer charging assembly. - turn on or off the switch (K) of the Y pre-transfer charging assembly to enable or disable the color Y for the pre-transfer charging assembly.
Settings	0: disable; 1: enable at time of shipment/upon RAM initialization: 0

15.4.4.1.7 FEED-ADJ

<RVS-FD1>

T-15-154

	Use it to adjust the point of reversal in reversal delivery mode.
Range of Adjustment	-10 to +10 (in 1 mm increments) at time of shipment: factory adjustment value upon RAM initialization: 0

<RVS-DUP>

T-15-155

	Use it to adjust the point of reversal in duplexing mode.
Range of Adjustment	-10 to +10 (in 1-mm increments) at time of shipment : factory adjustment value upon RAM initialization: 0

<LOOP-T2>

T-15-156

	Use it to adjust the arching at the registration roller for heavy paper. pickup up from the cassette or the deck (other than multifeeder); arching at the registration roller at 1/3 speed operation
Particulars of Adjustment	A lower setting (arching at the registration roller) will serve to limit noise; however, too low a setting can affect the margin or can cause skew movement of paper.
Range of Adjustment	-10 to +10 (mm) **at time of shipment/upon initialization of RAM: 0**

15.4.4.1.8 MISC

<ACS-EN>

T-15-157

	Use it to adjust the ACS identification area.
Range of adjustment	-2 to 2 [at time of shipmen/after RAM initialization: 1]

<ACS-CNT>

T-15-158

	Use it to set the chrome count range for ACS identification.
Range of adjustment	-2 to 2 [at time of shipmen/after RAM initialization: 0]

<ACS-EN2>

T-15-159

	Use it to adjust the ACS identification range (for DF stream reading).
Method of adjustment	A higher setting increases the range of identification.
Range of adjustment	-2 to 2 [at time of shipment/after RAM initialization: 1]

<ACS-CNT2>

T-15-160

	Use it to adjust the count range of chrome pixels for ACS identification (for DF stream reading).
Method of adjustment	A higher setting increases the range of identification.
Range of adjustment	-2 to 2 [at time of shipment/after RAM initialization: 0]

15.4.4.1.9 EXP-LED

<PR-EXP>

T-15-161

	Use it to set the pre-exposure LED current level for when potential control is off (feed speed at 1/1) While keeping the potential control mechanism off, set the level of current for the pre-exposure LED (feed speed at 1/1).
range of settings	31 to 58 (in increments of 1) at time of shipment/upon RAM initialization: 44

<EXP-ROT>

T-15-162

	Use it to set the length of time for pre-exposure at time of last rotation. Range of Settings
Range of Settings	0: forced pre-exposure last rotation disabled 1: 30 sec 2: 1 min 3: 1 min 30 sec 4: 2 min at time of shipment/upon RAM initialization: 1

15.5 FUNCTION （Operation/Inspection Mode）

15.5.1 COPIER

15.5.1.1 INSTALL

15.5.1.1.1 Overview

Operation for Installation

15.5.1.1.2 <TONER-S>

T-15-163

	Use it to stir the toner inside the developing assembly at time of installation.
Methot of operation	1) Select the item to highlight, and press the OK key. - the machine starts operation. - the machine begins a countdown. 2) See that 'OK' has appeared, indicating that the operation is over.

15.5.1.1.3 <STIR-Y>

T-15-164

	Use it to stir the toner inside the developing unit (Y).
Opening	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.4 <STIR-M>

T-15-165

	Use it to stir the toner inside the developing unit (M).
Opening	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.5 <STIR-C>

T-15-166

	Use it to stir the toner inside the developing unit (C).
Opening	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.6 <SPLY-H-Y>

T-15-167

	Use it to start initial supply of toner from the toner cartridge (Y) to the toner buffer assembly.
Opening	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.7 <SPLY-H-M>

T-15-168

	Use it to start initial supply of toner from the toner cartridge (M) to the toner buffer assembly.

Opening	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.8 <SPLY-H-C>

T-15-169

	Use it to start initial supply of toner from the toner cartridge (C) to the toner buffer assembly.
Opening	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.9 <CARD>

T-15-170

	Use it to set up a card reader.
	1 to 200 (at time of shipment/upon RAM initialization: 0)
Method of operation	Enter a number for the cards, and press the OK key. (As many as 100 cards each given a number starting with the one you entered will be enabled for use.) At this time, the card control information (group ID and ID No.) is initialized.

15.5.1.1.10 <KEY>

T-15-171

	Use it to set the control key function.
Settings	**0: do not recognize control key. [at time of shipment/after RAM initialization: 0]**
	1: recognize control key function.

	Use it to set the control key function.
Settings	**0: do not recognize control key. [at time of shipment/after RAM initialization: 0]**
Method of operation	1) Make the following selections, and enter '1': COPIER>INSTALL>KEY. 2) Turn off and then on the main power switch (so that the control key function will be recognized).

15.5.1.1.11 <INISET-Y>

T-15-172

	Use it to set up the Y color developing assemblies for the first time.
Method of operatoin	1) Select the item to highlight, and press the OK key. - the machine will start operation. - the machine will start a countdown. 2) See that 'OK' appears, indicating that the operation is over.
note	The series of operations needed to initialize the Y/M/C color developing assembly will be executed at a time: - power control offset adjustment - EPC control - primary transfer ATVC - ITB cleaning - secondary transfer power supply, idle rotation - toner stirring - optical ATR initialization - patch initialization

15.5.1.1.12 <INISET-M>

T-15-173

	Use it to set up the M color developing assemblies for the first time.
Method of operatoin	1) Select the item to highlight, and press the OK key. - the machine will start operation. - the machine will start a countdown. 2) See that 'OK' appears, indicating that the operation is over.
note	The series of operations needed to initialize the Y/M/C color developing assembly will be executed at a time: - power control offset adjustment - EPC control - primary transfer ATVC - ITB cleaning - secondary transfer power supply, idle rotation - toner stirring - optical ATR initialization - patch initialization

15.5.1.1.13 <INISET-C>

T-15-174

	Use it to set up the C color developing assemblies for the first time.
Method of operatoin	1) Select the item to highlight, and press the OK key. - the machine will start operation. - the machine will start a countdown. 2) See that 'OK' appears, indicating that the operation is over.

note	The series of operations needed to initialize the Y/M/C color developing assembly will be executed at a time: - power control offset adjustment - EPC control - primary transfer ATVC - ITB cleaning - secondary transfer power supply, idle rotation - toner stirring - optical ATR initialization - patch initialization

15.5.1.1.14 <INISET-3>

T-15-175

	Use it to set up the 3 (YMC) developing assemblies.
Method of operatoin	1) Select the item to highlight, and press the OK key. - the machine will start operation. - the machine will make a countdown. 2) See that 'OK' appears, indicting that the operation is over.
Note	The series of operations needed to initialize the 3 color (YMC) developing assemblies will be executed at a time. -LED intensity correction -potential control sensor offset adjustment -potential control -primary transfer ATVC -ITB cleaning -secondary transfer powered idle rotation -toner stirring -optical ATR initialization -patch initialization

15.5.1.1.15 <STIR-3>

T-15-176

	Use it to stir the toner inside the developing assembly (Y/M/C).
Method of operatoin	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.16 <SPLY-H-3>

T-15-177

	Use it to supply toner from the toner cartridge (HY/MC) to the toner buffer assembly.
Method of operatoin	Select the item to highlight, and press the OK key to start operation.

15.5.1.1.17 <AINR-OFF>

T-15-178

	Use it to enable or disable initial multiple rotation used for installation work.
Overview	You can disable initial multiple rotation if you are concerned about the image formation sequence (i.e., forming a patch or executing Dmax/Dhalf), which can soil or wear out internal components during installation work). If the color toner set-up run (FUNCTION>INSTALL>INSET-3) ends fully normally, the setting herein will automatically be cancelled (to prevent faults that otherwise could occur if the function is not manually switched back); if the run failed to end, however, the initial multiple rotation function will remain disabled.
Settings	0: enable initial multiple rotation 1: disable initial multiple rotation (item under DC controller) at time of shipment: factory adjustment value upon RAM initialization: 0

15.5.1.2 CCD

15.5.1.2.1 Overview

CCD-Related Automatic Adjustmant

15.5.1.2.2 <DF-WLVL1/2>

T-15-179

	Use it to adjust the ADF white level.
Method of operatoin	Adjust the ADF white level as follows (copyboard scan): 1) Place the type of original most often used by the user on the copyboard glass, and execute the following service mode item: COPIER>FUNCTION>CCD>DF-WLVL1. (In response, the machine will read the white level for book mode, checking the transmission quality of the glass for book mode).
	Adjust the ADF white level as follows (stream reading scan) 2) Place the type of original most often used by the user in the DF, and execute the following service mode item: COPIER>FUNCTION>CCD>DF-WLVL2. (In response, the machine will read the white level for DF mode (stream reading mode), checking the transmission quality of the reading glass by reading both sides of the original.) face reading: computes DFTAR-R/G/B
Attention	Be sure to execute this item in combination with item 2.

15.5.1.3 LASER

15.5.1.3.1 Overview

Making Laser-Related Adjustments

15.5.1.3.2 <POWER>

T-15-180

	Use it to turn on the laser for adjustment of the laser power.
Method of Operation	1) Select the item to highlight.
	2) Press the OK key. To stop, press the Stop key.

15.5.1.4 DPC

15.5.1.4.1 Overview

Making Potential Control-Related Adjustments

15.5.1.4.2 <DPC>

T-15-181

	Use it to execute potential control.
Method of Operation	Select the item to highlight, and press the OK key to execute the operation. (The operation will stop automatically.).

15.5.1.4.3 <OFST>

T-15-182

	Use it to adjust the offset value of the potential measurement circuit.
Method of Operation	Select the item to highlight, and press the OK key to start operation. (The operation will stop automatically.)

15.5.1.5 CST

15.5.1.5.1 Overview

Cassette/Manual Feed Tray-Related Auto Adjustment

15.5.1.5.2 <MF-A4R, MF-A6R, MF-A4>

T-15-183

	Use it to enter the paper width basic value for the manual feeder. A4 width: 210 mm; A6R width: 105 mm; A4 width: 297 mm - To make fine-adjustments, make the following selections: COPIER>ADJUST>CST-ADJ>MF-A4, RMF-A6R, MF-A4.
Method of operation	1) Place A4 paper in the manual feeder, and adjust the size guide to A4R width. 2) Using this service mode item, select 'MF-A4R' to highlight, and press the OK key(so that the value will be stored after auto adjustment). 3) Likewise, perform steps 1) and 2) to register the basic value for A6R and A4.

15.5.1.6 CLEANING

15.5.1.6.1 Overview

Cleaning Operation

15.5.1.6.2 <TBLT-CLN>

T-15-184

	Use it to clean the intermediate transfer belt. The foreign matter, if any, (e.g., oils from fingers, paper lint) sticking to the intermediate transfer belt is removed to correct image faults
Operation	Select the item to highlight, and press the OK key to execute. The operation will stop automatically

15.5.1.6.3 <WIRE-CLN>

T-15-185

	Use it to clean the primary charging wire/pre-transfer charging wire.
Method of Operation	Select the item to highlight, and press the OK key to start operation. Cleaning continues for about 80 sec, and will stop automatically.

15.5.1.6.4 <WIRE-EX>

T-15-186

	Use it to clean the primary charging wire/pre-transfer charging wire (a single round trip).
Method of Operation	Select the item to highlight, and press the OK key to start the operation. (The operation will stop automatically.)
Note	The primary charging wire/pre-transfer charging wire may be cleaned for a signal round trip. Normally, the wire is cleaned by 5 round trips (about 3 min); on the other hand, the single trip in this mode will take no more than about 40 sec.)

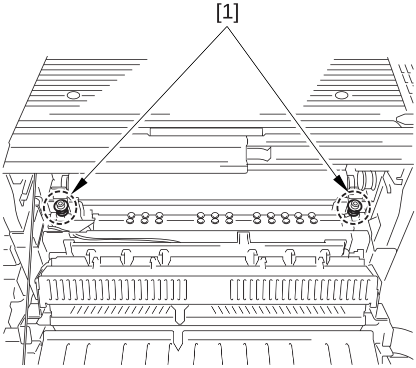
15.5.1.7 FIXING

15.5.1.7.1 Overview

Fixing Unit-Related Auto Adjustments

15.5.1.7.2 <NIP-CHK>

⚠NIP-CHK is a service mode item used to check the nip width of the fixing roller. The nip is adjusted to a high degree of accuracy before the machine is shipped out of the factory, and it cannot be adjusted in the field. Do not turn the 2 hex bolts [1] found on the delivery side of the fixing assembly. If you turned it by mistake, be sure to turn it back to its initial position.



F-15-18

Generating a Printout for Fixing Nip Width Auto Measurement

Method of operation

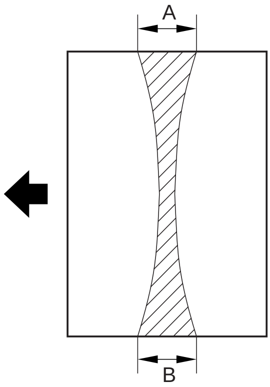
1) Select 'plain paper' or 'recycled paper' as the type of paper to be placed in the manual feed tray (user mode>common settings>paper type).
2) Place A4 (LTR) plain paper or recycled paper in the manual feed tray.
3) Select service mode, and press the OK key. (The paper in the manual feed tray will be picked up.)
4) See that the paper is stopped between the fixing rollers and then is discharged in about 10 sec.
5) Check to see if the nip width of the discharged paper is as indicated.

Standard

The difference between a and b must be as follows:

Note 1: Measure a and b at points 15 to 20 mm from the edges of paper.

Note 2: The arrow in the figure indicates the movement of paper.



F-15-19

15.5.1.8 PANEL

15.5.1.8.1 Overview

Checks on the Control Panel

15.5.1.8.2 <LCD-CHK>

T-15-187

	Use it to check the LCD for a missing dot.
Method of operation	1) Select the item, and press the OK key to start the operation. See that the front face of the touch panel goes on in the following sequence: white, black, red, green, and blue. 2) Press the Stop key to end the operation. (In the case of the printer model, press the Clear key.)

15.5.1.8.3 <LED-CHK>

T-15-188

Use it to check the LEDs on the control panel.	
Method of operation	1) Select it, and press the OK key to start the operation. See that the LEDs go on in sequence. 2) Press [LED-OFF] to stop the operation.

15.5.1.8.4 <LED-OFF>

T-15-189

	Use it to check the LCD for a missing dot.
Method of operation	1) Select it to end the operation under [LED-CHK].

15.5.1.8.5 <KEY-CHK>

T-15-190

	Use it to check the keys.
Method of operation	1) Select [KEY-CHK] so that the machine indicates the numbers/names of the input keys. 2) Press any key to check; if normal, the appropriate character will appear on the touch panel. (See the table.) 3) Select [KEY-CHK] once again to end the key input check.

T-15-191

Numbers/Names of the Keys

Key	Indication on screen
0 to 9, #, *	0 to 9, #, *
reset	RESET
stop	STOP
user mode	USER
start	START
power save	STAND BY
clear	CLEAR
ID	ID
help	?
counter check	BILL

15.5.1.8.6 <TOUCHCHK>

T-15-192

	Use it to adjust the coordinates of the analog touch panel.
Operation	Match the points pressed on the touch panel and their corresponding coordinates on the LCD. Execute this service mode whenever you have replaced the LCD. 1) Select [TOUCHCHK] to highlight, and press the OK key. 2) Press the + symbols that appear on the touch panel at 9 locations in sequence to complete the adjustment.

15.5.1.9 PART-CHK

15.5.1.9.1 Overview

15.5.1.9.2 <CL>

T-15-193

	Use it to select a clutch whose operation you want to check.	
Operation	1)Select the item.	
	2)Enter the code of the clutch using the keypad.	
	1:color development clutch	CL1
	2:color toner supply clutch (CL2)	CL2
	3:black development clutch (CL3)	CL3
	8:deck feed clutch(CL101)	CL101
	9:deck pickup clutch(CL102)	CL102
	4 through 7,10: reserved	
	3)Press the OK key.	
	4)Press [CL-ON] to start checking the operation.	

15.5.1.9.3 <CL-ON>

T-15-194

	Use it to start a check on the selected clutch.
Operation	1)Select the item, and press the OK key so that the clutch will repeat going on and off as follows: on for 0.5 sec > off for 10 sec > on for 0.5 sec > off for 10 sec > on for 0.5 sec > off

15.5.1.9.4 <FAN>

T-15-195

	Use it to select the clutch whose operation you want to check. (range: 1 through 10; 4 through 10 are reserved)
	(range: 1 through 10; 4 through 10 are reserved)
Operation	1)Select the time.
	2)Enter the code of the selected clutch using the keypad.
	1:primary charging suction fan (FM1)
	2:primary charging exhaust fan (FM2)
	3:feed fan 1 (FM3), feed fan 3 (FM11)
	4:feed fan 2 (FM4), feed fan 4 (FM12)
	5:fixing heat discharge fan (FM5)
	6:delivery cooling fan 1 (FM6)
	7:process unit cooling fan (FM7)
	8:reserved
	9:power supply cooling fan (FM9)
	10:delivery cooling fan 2 (FM10)
	4 to 10:reserved
	3)Press the OK key.
	4)Press [CL-ON] to start checking the operation.

15.5.1.9.5 <FAN-ON>

T-15-196

	Use it to start a check on the selected fan.
Operation	1)Select the item, and press the OK key so that the following will take place: on at full speed for 10 sec > on for half-speed for 10 sec > standby

15.5.1.9.6 <MTR>

T-15-197

	Use it to select the clutch whose operation you want to check. (range: 1 thorough 32; 16, 24, 29, 30, 31, 32 are reserved)
Operation	1) Select the item. 2) transfer the code of the clutch you want to check using the keypad. 1:polygon motor (M1) 2:drum/ITB motor (M2) 3:development motor (M3) 4:fixing motor (M4) 5:developing rotary motor (M5) 6:manual feed pre-registration motor (M6)

7: reserved

8:registration motor (M8)

9:external delivery motor (M9)

10:duplexing reversal motor (M10)

11:duplexing left motor (M11)

12:duplexing center motor (M12)

13:duplexing right motor (M13)

14:right deck pull-off motor (M14)

15:veridical path motor (M15)

16:reserved

17:right deck pickup motor (M17)

18:left deck pickup motor (M18)

19:cassette pickup motor (M19)

20:secondary transfer outside roller shift motor (M20)

21:ITB cleaner shift motor (M21)

22:outside heating roller shift motor (M22)

23:hopper stirring motor (M23)

24:reserved

25:black toner supply motor (M25)

26:primary charging wire cleaning motor (M26)

27:pre-transfer charging cleaning motor (M27)

28:horizontal registration motor (M28)

35:deck main motor(M101)

37:shift motor

3)Press the OK key.

4)Press [CL-ON] to start checking the operation.

15.5.1.9.7 <MTR-ON>

T-15-198

	Use it to start the operation of the motor.
Method of operation	Toner Cartridge Motor (Y, M, C, K) 1) Remove the toner cartridge, and close the front cover. 2) Select the item, and press the OK key. - for 10 sec ON > OFF Horizontal Registration Motor 1) Select the item, and press the OK key. - HP search starts > end automatically Motors Other than Toner Cartridge Motor (Y, M, C, K) and Horizontal Motor

1) Select the item, and press the OK key.

- for 10 sec, ON > OFF

15.5.1.9.8 <MTR-ON>

T-15-199

Use it to start a check on the selected motor.

Operation 1)Select the item, and press the OK key.

2)-in the case of MOTOR=1 through 4, 6, 8 through 15, 17 through 19, 23, 25 through 28,
on for 10 sec > end
-in the case of MOTOR=20 through 22,
on for 5 sec > end
-in the case of MOTOR=5,
HP search start > end

15.5.1.9.9 <SL>

T-15-200

Use it to select the solenoid whose operation you want to check.

(range: 1 thorough 15)

Operation 1)Select the item.

2)Enter the code of the solenoid you want to check.

1:manual feed solenoid (SL1)

2:fixing web solenoid (SL2)

3:reversal shift solenoid (SL3)

4:left deck confluence solenoid (SL4)

5:delivery solenoid (SL5)

6:deck (right) pickup solenoid (SL6)

7:deck (left) pickup solenoid (SL7)

8:cassette 3 pickup solenoid (SL8)

9:cassette 4 pickup solenoid (SL9)

10:developing rotary locking solenoid (SL10)

11:patch image read sensor shutter solenoid (SL1C)

12:ATR sensor shutter solenoid (SL2C)
14:deck feed clutch
15:deck pickup clutch
13 :reserved

3) Press the OK key.

4) Press [SL-ON] to start checking the operation.

15.5.1.9.10 <SL-ON>

T-15-201

Use it to start the operation of the solenoid.

Operation	Select the item, and press the OK key so that the selected solenoid will repeat going on and off as follows: on for 0.5 sec > off for 10 sec > on for 0.5 sec > off for 10 sec > on for 0.5 sec > off

15.5.1.10 CLEAR

15.5.1.10.1 Overview

Resetting RAM/Error Code/Jam History/Error History

15.5.1.10.2 <ERR>

T-15-202

	Use it to reset an error code.
	(E000, E001, E002, E003)
Method of operation	1) Select the item, and press the OK key.
	2) Turn off and then on the main power supply.

15.5.1.10.3 <DC-CON>

T-15-203

	Use it to reset the RAM on the DC controller PCB.
Caution	The contents of the RAM are removed when the main power switch is turned off and then on once again.
Method of operation	1) Obtain a printout of the service mode settings by making the following selections: COPIER>FUNCTION>MISC-P>P-PRINT.

	2) Select the item, and press the OK key. 3) Turn off and then on the main power. 4) As necessary, enter the data indicated on the print obtained using [P-PRINT].

15.5.1.10.4 <R-CON>

T-15-204

	Use it to initialize the RAM on the reader controller PCB.
Caution	The contents of the RAM are initialized only when the main power switch has been turned off and then on once again.
Method of operation	1) Obtain a printout of the service mode settings by making the following selections: COPIER>FUNCTION>MISC-P>P-PRINT. 2) Select the item, and press the OK key. 3) Turn off and then on the main power. 4) As necessary, enter the data indicated on the printout obtained by [P-PRINT].

15.5.1.10.5 <JAM-HIST>

T-15-205

	Use it to reset the jam history.
Caution	The jam history is removed when the OK key is pressed.
Method of operation	1) Select the item, and press the OK key.

15.5.1.10.6 <ERR-HIST>

T-15-206

	Use it to reset the error history.
Caution	The error history is removed when the OK key is pressed.
Method of operation	1) Select the item, and press the OK key.

15.5.1.10.7 <PWD-CLR>

T-15-207

	Use it to initialize the password of the system administrator.
Note	The password will not be initialized until the OK key is pressed.
Operation	1)Select the item, and press the OK key.

15.5.1.10.8 <ADRS-BK>

T-15-208

	Use it to reset the address book data.
Caution	The address book data is removed when the main power switch is turned off and then on once again.
Method of operation	1) Select the item, and press the OK key. 2) Turn off and then on the main power.

15.5.1.10.9 <CNT-MCON>

T-15-209

	Use it to reset the service counter readings controlled by the main controller PCB (main).

	(For the readings that are reset, see the description under COUNTER mode.)
Caution	The counter readings are removed when the OK key is pressed.
Method of operation	1) Select the item, and press the OK key.

15.5.1.10.10 <CNT-DCON>

T-15-210

	Use the item to reset the service counter readings controlled by the DC controller PCB. - COPIER>COUNTER>DRBL-2>SORT - COPIER>COUNTER>DRBL-2>FIN-STPR - COPIER>COUNTER>DRBL-2>FIN-PDDL - COPIER>COUNTER>DRBL-2>SADDLE - COPIER>COUNTER>DRBL-2>SDL-STPL
Caution	The counter readings are removed when the OK key is pressed.
Method of operation	1) Select the item, and press the OK key.

15.5.1.10.11 <OPTION>

T-15-211

	Use it to reset the service mode (OPTION) settings to default settings (RAM initialization).
Caution	The settings are reset when the OK key is pressed.
Reference	The data removed here is data in the main controller, DC controller, and reader controller.
Method of operation	1) Obtain a printout of the service mode settings by executing the following selections: COPIER>FUNCTION>MISC-P>P-PRINT. 2) Select the item, and press the OK key.

15.5.1.10.12 <MMI>

T-15-212

	Use it to reset the following for user mode.
	- backup data for copier control panel (user settings)
	- common settings backup data (user settings)
	- backup data (other than fax settings; user settings)
Caution	The settings are removed when the main power switch is turned off and then on again.
Method of operation	1) Select the item, and press the OK key.
	2) Turn off and then on the main power.

15.5.1.10.13 <MN-CON>

T-15-213

	Use it to reset the RAM in the main controller PCB SRAM board.
Caution	- The contents of the RAM are removed when the main power switch is turned off and then on once again.
	- When this item is executed, all data on the SRAM board will be initialized. In other words, the image data including the images in Boxes on the hard disk will also be lost. Be sure to obtain the consent of the user before executing this item.
Method of operation	1) Obtain a printout of the service mode settings by executing the following selections: COPIER>FUNCTION>MISC-P>P-PRINT.
	2) Select the item, and press the OK key. The machine will restart automatically, and indicate a message asking you to turn off and then on the power.

3) Turn off and then on the main power.

15.5.1.10.14 <CARD>

T-15-214

	Use it to reset card ID-related data (group).
Caution	The card ID-related data is removed when the main power switch is turned off and then on.
Method of operation	1) Select the item, and press the OK key.
	2) Turn off and then on the main power.

15.5.1.10.15 <W-TN-CLN>

T-15-215

	Use it to reset a waste toner box full alert/error.
Overview	If you have replaced the waste toner box, execute this item to reset the alert/error and initialize the counter used for the waste toner box detection mechanism.
Method of Operation	Select the item to highlight, and press the OK key to start operation.

15.5.1.11 MISC-R

15.5.1.11.1 Overview

Checking the Operation of the Reader Unit

15.5.1.11.2 <SCANLAMP>

T-15-216

	Use it to check the operation of the scanning lamp.
Method of operation	1) Select the item.
	2) Press the OK key so that the scanning lamp remains on for 3 sec.

15.5.1.12 MISC-P

15.5.1.12.1 Overview

Checking the Operation of the Printer Unit

15.5.1.12.2 <P-PRINT>

T-15-217

	Use it to generate a printout of the service mode settings.
Method of operation	1) Select the item.
	2) Press the OK key to generate a printout.
Reference	It takes about 15 sec for the machine to generate a printout.

15.5.1.12.3 <USER-PRT>

T-15-218

	Use it to obtain a printout of the user mode settings.
Method of operation	1) Select the mode.
	2) Press the OK key to generate a printout.
Reference	It takes about 3 sec for the machine to generate a printout.

15.5.1.12.4 <LBL-PRNT>

T-15-219

	Use it to obtain a printout of the service label.
Method of operation	1) Place 4/LTR paper in the cassette 1.
	2) Select the item.
	3) Press the OK key to generate a printout.
Reference	It takes about 15 sec for the machine to generate a printout.

15.5.1.12.5 <PRE-EXP>

T-15-220

	Use it to check the activation of the pre-exposure lamp (LED).
Operation	1)Press the item to highlight. 2)Press the OK key so that the individual operations are executed for several seconds and the execution stops automatically (full activation). 3)Press the OK key to generate a printout.
Reference	If a fault is noted on the photosensitive drum as the result of activating the pre-exposure lamp, rotate the drum.

15.5.1.12.6 <DEV-DR-Y>

T-15-221

	Use it to move the developing assembly rotary to the point of replacement for the toner cartridge (Y).
Method of operation	1) Select the item. 2) Press the OK key so that the developing assembly rotary moves to the point of replacement for the toner cartridge (Y).
Caution	The machine is set in such a way that the user will not be able to remove a toner cartridge if it still contains toner. The cartridge may be removed by moving the developing rotary to the point of access only when the cartridge has run out of toner. The use of this service mode item enables the user to move the developing rotary to the point of access so that the Y toner cartridge may be removed regardless of the presence/absence of toner inside it.

15.5.1.12.7 <DEV-DR-M>

T-15-222

	Use it to move the developing assembly rotary to the point of replacement for the toner cartridge (M).
Method of operation	1) Select the item. 2) Press the OK key so that the developing assembly rotary moves to the point of replacement for the toner cartridge (Y).

Caution	The machine is set in such a way that the user will not be able to remove a toner cartridge if it still contains toner. The cartridge may be removed by moving the developing rotary to the point of access only when the cartridge has run out of toner. The use of this service mode item enables the user to move the developing rotary to the point of access so that the Y toner cartridge may be removed regardless of the presence/absence of toner inside it.

15.5.1.12.8 <DEV-DR-C>

T-15-223

	Use it to move the developing assembly rotary to the point of replacement for the toner cartridge (C).
Method of operation	1) Select the item. 2) Press the OK key so that the developing assembly rotary moves to the point of replacement for the toner cartridge (Y).
Caution	The machine is set in such a way that the user will not be able to remove a toner cartridge if it still contains toner. The cartridge may be removed by moving the developing rotary to the point of access only when the cartridge has run out of toner. The use of this service mode item enables the user to move the developing rotary to the point of access so that the Y toner cartridge may be removed regardless of the presence/absence of toner inside it.

15.5.1.12.9 <D-PRINT>

T-15-224

	Use it to print out service mode settings (DISPLAY). item under DISPLAY LEVEL 1 only
Method of Operation	1) Select the item to highlight, and press the OK key to start the operation.

15.5.1.12.10 <1ATVC-EX>

T-15-225

	Use it to force primary ATVC.
Operation	1)Select the item. 2)Press the OK key to start operation. (The operation will end in about 1 min.)
Remarks	Be sure to execute this item if you have replaced the intermediate transfer belt, ITB unit, or primary transfer roller.

15.5.1.12.11 <ENV-PRT>

T-15-226

	Use it to print out a log on the changes that may have taken place in machine inside temperature/humidity and fixing temperature.
Note	The log shows changes in machine inside temperature/ humidity and fixing temperature (middle) as colleted from the output of the environment sensor and non-contact thermistor.

15.5.1.12.12 <1TR-ROT>

T-15-227

	Use it to execute idle rotation of the primary transfer roller.
Reference	Use it to force idle rotation of the primary transfer roller while applying a primary transfer bias so as to prevent a fault in primary transfer ATVC otherwise caused by changes in the environment. When this service mode item is executed, the machine will automatically force execution of primary transfer ATVC.

15.5.1.12.13 <DR-P-ADJ>

T-15-228

	Use it to adjust the phase shift of the photoactive drum.
	Use it to execute the adjustment sequence for a phase shift of the photosensitive drum.
Operation	1)Select the item to highlight, and press the OK key. In response, the adjustment will start and the indication will change to 'ACTIVE'. At the end, the indication will change to 'OK!'.

15.5.1.13 SENS-ADJ

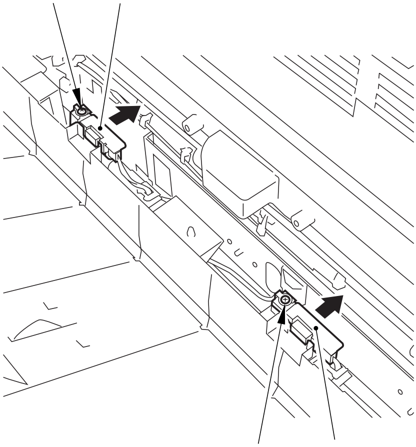
15.5.1.13.1 Overview

Checking the Sensor Operation

15.5.1.13.2 <STCK-LMT>

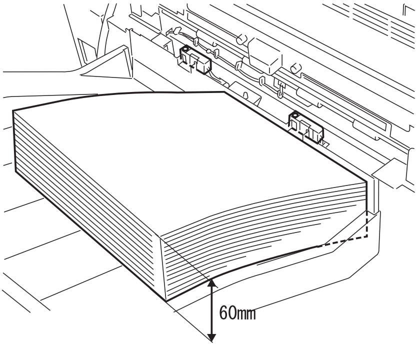
Use it to adjust the position of the shift tray full sensor.
The indication will be 'ON' when the shift tray is identified as being full; otherwise, it will be 'OFF'.

1) Remove the 3 face covers.
2) Remove the 2 screws [1], and detach the delivery unit.
3) Loosen the screw [1], and temporarily fix the 2 tray full sensors in place farthest from the paper.



F-15-20

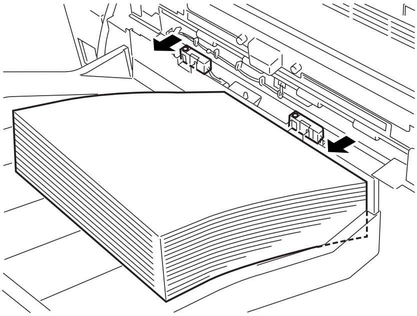
4) On the point of detection of either of the tray full sensors, place a stack of paper about 60 mm high.



F-15-21

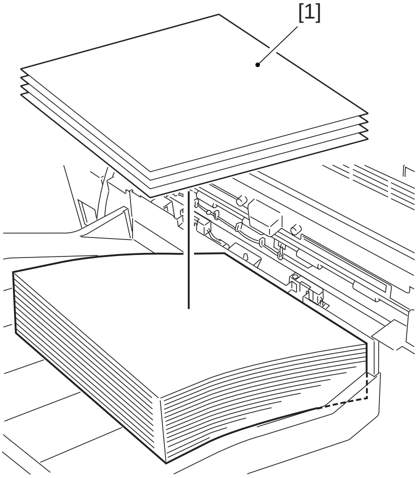
5) Select the time, and press the OK key.
6) While referring to the index, move the sensor toward the paper from the position farthest

away from the paper; then, fix it in place where the indication turns 'OK'.



F-15-22

Memo : If the indication does not change to 'ON' even when the tray full sensor has been brought closest to the paper, add a sheet of paper until it does.



F-15-23

7) Move the stack of paper to the point of detection of the other tray full sensor.
8) Perform step 4) once again to adjust the position of the sensor.
9) When done, press the Stop key.

15.5.1.14 SYSTEM

15.5.1.14.1 Overview

Checking System-Related Operation

15.5.1.14.2 <DOWNLOAD>

T-15-229

	Use it to switch over to download mode.
Method of operation	1) Select the item.
	2) Press the OK key so that the machine will enter download mode and waits for a command (connection). At this time, [STAND-BY] (or [STANDBY]) will be indicated next to the Level 3 field.
	3) Uses the Service Support Tool to perform downloading work. (While connected to a PC, the machine will indicate [CONNECTED].)
	4) See that that the notation has changed to [HOLD] to indicate that the communication has ended. (You may turn off the power while the indication is [HOLD].)

15.5.1.14.3 <CHK-TYPE>

T-15-230

	Use it to select the number of the partition that you want to check (HD-CHECK).
Method of operation	1) Select the item.
	2) Select the number of the partition you want to check using the keypad.

0: entire HDD (check and correction)

1: image storage area

2: multiple-use file storage area

3: PDL-related file storage area

4: firmware storage area

- A PDL file is a file that contains user settings data, various log data, PDL spool data, and image data (i.e., control information for data).

3) Press the OK key.

15.5.1.14.4 <HD-CHECK>

T-15-231

	Use it to check and correct the partition you have selected using CHK-TYPE.
Method of operation	1) Select the item. 2) Press the OK key. 3) See the result (1: OK; 2: NG, hardware; 3: NG, software/corrected sector, switched sector).

15.5.1.14.5 <HD-CLEAR>

T-15-232

	Us it to initialize the partition you have selected using CHK-TYPE.
Caution	- if you have selected 0 or 4, the selections will be invalid. - if you have selected 1, the SRAM area and the image control data held in the multiple-purpose file storage area will also be initialized.
Method of operation	1) Select the item. 2) Press the OK key.

⚠The initialization is done when the power is turned off and then on if you execute [HD-CLEAR] after using [CHK-TYPE] to select 1: image storage area or 3: PDL-related file storage area.

The initialization takes about 5 min, during which time the progress bar moves slowly. Do not turn off the power while the progress bar is indicated.

15.5.2 FEEDER

15.5.2.1 Overview

Checking the DF on Its Own

15.5.2.2 <SENS-INT>

T-15-233

Use it to adjust the sensitivity of the individual sensors of the feeder.

Select the item, and press the OK key to start feeder sensor initialization, turning the screen indication to 'ACT'. The operation will end automatically, turning the indication to 'OK'.

15.5.2.3 <MTR-CHK>

T-15-234

Use it to check the motor and the like of the ADF on its own.

Operation

1) Press [MOTOR-CHK] to highlight.
2) Enter the number of the component using the keypad.
3) Press the OK key.
4) Press [MOTOR-ON[to start checking the operation.

Settings

0: pickup motor
1: feed motor
2: delivery reversal motor
4: lock motor

at time of shipment: factory default
upon RAM initialization: 0

15.5.2.4 <TRY-A4>

Use it to execute automatic adjustment (A4 Width) for DF original paper width detection.

15.5.2.5 <TRY-A5R>

Use it to execute automatic adjustment (A5R width) for DF original paper width detection.

15.5.2.6 <TRY-LTR>

Use it to execute automatic adjustment (LTR width) for DF original paper width detection.

15.5.2.7 <TRY-LTRR>

Use it to execute automatic adjustment (LTR-R width) for DF original paper width detention.

15.5.2.8 <FEED-CHK>

T-15-235

Use it to check paper movement in the ADF on its own.

Operation
1) Press [FEED-CHK] to highlight.
2) Enter the number of the component using the keypad.
3) Press the OK key.
4) Press [FEED-ON] to start checking the operation.

Feed Mode
0: single-sided operation
1: double-side operation
2: single-sided operation w/ stamp
3: double-sided operation w/ stamp

at time of shipment: factory default
upon RAM initialization: 0

15.5.2.9 <CL-CHK>

T-15-236

Use it to check the DF clutch on its own.

Press 'CL-ON' to start.

1)Press [CL-CHK] (to highlight).
2)Enter the code of the part you want to check.
3)Press the OK key.
4)Press [CL-ON] to start checking the operation.
Code of Part
0:pickup clutch

15.5.2.10 <CL-ON>

T-15-237

Use it to start the operation of the selected clutch.

Press [CL-ON] and then press the OK key to start the operation of the clutch.
Another press on the key will stop the operation.
(The operation will stop in 200 msec; however, unless you press the OK key once again, the indication will not change to STOP.)

15.5.2.11 <FAN-CHK>

T-15-238

Use it to check the DF cooling fan.

Execute using FAN-ON.

1) Press [FAN-CHK] to highlight.
2) Enter the number of the component using the keypad.
3) Press the OK key.
4) Press [FAN-ON] to start checking the operation.

Component Number
0: cooling fan

15.5.2.12 <FAN-ON>

T-15-239

Use it to start the operation of the selected fan.

Press [FAN-ON], and press the OK key to start the operation of the fan.
Another press on the OK key will stop the operation.
(The operation will automatically stop in 5 sec; hover, unless you press the OK key once again, the indication will not turn 'STOP'.)

15.5.2.13 <SL-CHK>

T-15-240

Use it to check the ADF solenoid on its own.

Operation
1) Press [SL-CHK] to highlight
2) Enter the number of the component using the keypad.
3) Press the OK key.
4) Press [SL-ON] to start checking the operation.

Number of Component
0: lock solenoid
1: stamp solenoid

at time of shipment: factory default
upon RAM initialization: 0

15.5.2.14 <SL-ON>

T-15-241

Use it to start the operation of the selected solenoid.

Operation
The operation varies from model to model.

1) Press [SL] to highlight; then, press the OK key to start motor operation.
2) Press the OK key once again to stop the ongoing operation.
(The operation will stop automatically in 5 sec; however, the indication will not change to [STOP] unless the OK key is pressed once again.)

15.5.2.15 <MTR-ON>

T-15-242

Use it to start motor operation.

Operation

The operation varies from model to model.

1) Press [MTR-ON] to highlight; then, press the OK key to start motor operation.

2) Press the OK key once again to stop the motor.

(The operation will stop automatically in 5 sec; however, the indication will not change to [STOP] unless the OK key is pressed once again.)

15.5.2.16 <ROLL-CLN>

T-15-243

Use it to clean the ADF roller.

In this mode item, the roller is rotated by the work of its motor; it is cleaned by lint-free paper (moistened with alcohol) forced against it while it rotates.

Operation

1) Press [ROLL-CLN] to highlight.

2) While the roller is rotating, clean it by forcing lint-free paper (moistened with alcohol) against it.

3) Press [ROLL-CLN] to highlight, and press the OK key to stop the rotation of the roller.

15.5.2.17 <FEED-ON>

T-15-244

Use it to check the movement of paper in the ADF on its own.

Operation

1) Press [FEED-ON], and then press the OK key so that the ADF starts to move paper according to the operation mode selected using [FEED-CHK].

15.5.3 FUNCTION （operation/inspection mode）:Level 2

15.5.3.1 COPIER

15.5.3.1.1 INSTALL

<INIT-Y/M/C>

T-15-245

	Use it to cause the machine to read the initial value of the toner density signal (SGNL, REF) of Y/M/C.
Method of Operation	Select the item to highlight, and press the OK key to start the operation.

<INIT-3>

T-15-246

	Use it to cause the machine to read the initial value of the toner density signals (SGNL, REF) of 3 colors (YMC).
Method of Operation	Select the item to highlight, and press the OK key to start the operation.

15.5.3.1.2 CLEANING

<BK-BNDEX>

T-15-247

	Use it to execute the black band sequence.

Details of Control	- a sequence of operations will be executed to clean the intermediate transfer belt to prevent image faults (white spots) after filed servicing. The operation will take about 15 sec.
Method of Operation	1) Select the item, and press the OK key. - The notation will change to 'ACTIVE', and the wire will be cleaned. 2) To end the operation, press the OK key once again.

15.5.3.1.3 CLEAR

<SND-STUP>

Use it to initialize the setting for the transmission reading. (Execute this item when you switch language settings.)

15.5.3.1.4 MISC-P

<MAIN-DRV>

Use it to drive the intermediate transfer medium and the photosensitive drum for a specific period of time.

1) Select the item to highlight.
2) Press the OK key, and turn off and then on the power to start the operation. The operation will end in a specific period of time.

<KEY-HIST>

Use it to obtain a printout of the history of key inputs made on the control panel.

1) Select the item.
2) Press the OK key so that the machine generates the printout.

<HIST-PRT>
iR C6800 / iR C6800N

Use it to obtain a printout of the history of jams and errors.

1) Select the item.
2) Press the OK key so that the machine generates the printout.

<TRS-DATA>

Use it to move data received in memory mode to a Box.

1) Select the item.

2) Press the OK key to move the data.

<ITB-ROT>

Use it to start idle rotation of the secondary transfer roller/intermediate transfer belt.

Execute idle rotation of the secondary roller and the intermediate transfer belt to prevent the intermediate belt from turning into a particular shape.

1) Select the item to highlight, and press the OK key to start the operation.

<ATR-EX>

Force ATR control.

Use it to force ATR control if the correction value for ATR control is lost, as after E020 (field servicing) or after replacing the DC controller PCB.

1) Select the item to highlight, and press the OK key to start the operation.

<INTR-EX>

Use it to force initial rotation, as the first thing in the morning.

You can force the various image stabilization control mechanisms (usually executed first thing in the morning during initial rotation) consisting of the following:

-potential control
-primary transfer ATVC
-Dmax control
-ITB cleaning
-secondary transfer powered idle rotation (only if selected in service mode)
-patch detection (only in high temperature/humidity environment)
-developing sleeve rotation (only in high temperature /humidity environment)

The operation takes about 1 min.

1) Select the item to highlight, and press the OK key to start operation.

15.6 OPTION （Machine Settings Mode）

15.6.1 COPIER

15.6.1.1 BODY

15.6.1.1.1 Overview

Selecting Machine-Related Settings

15.6.1.1.2 <PO-CNT>

T-15-248

	for factory adjustment

15.6.1.1.3 <MODEL-SZ>

T-15-249

	Use it to switch the default magnification display function and the ADF original size detection function.
Caution	The new settings become valid only when the main power switch has been turned off and then on.
Settings	0: AB (6R5E) 1: INCH (5R4E) 2: A (3R3E) 3: AB/INCH (6R5E)

15.6.1.1.4 <FIX-TEMP>

T-15-250

	Use it to change the plain paper down sequence.
Note	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: default 1: priority on fixing 2: priority on productivity at time of shipment/upon RAM initialization: 0

15.6.1.1.5 <PASCAL>

T-15-251

	Use it to enable/disable the use of contrast potential obtained from auto gradation correction (full) and the use of gradation correction data.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: do not use 1: use 2: reserved (same as 1) 3: reserved (same as 0) at time of shipment/upon RAM initialization: 1

15.6.1.1.6 <CONFIG>

T-15-252

	Use it to select multiple pieces of firmware stored on the hard disk, and to switch the machine's country, language, destination, and paper size configuration settings.
Caution	The new settings become valid when the main power switch has been turned off and then on.
Method of operation	1) Select the item whose setting you want to change, and press the +/- key. 2) See that each press on the +/- key changes the setting. 3) When all items are as you want, press the OK key. 4) Turn off and then on the main power switch.
Settings	XXYYZZAA XX: country (e.g., JP for Japan) YY: language (e.g., ja for Japanese) ZZ: destination (e.g., 00 for Canon) AA: paper size configuration (e.g., 00 for AB)

15.6.1.1.7 <TEMP-TBL>

T-15-253

	Use it to adjust the fixing assembly control temperature.
Setting	0: OFF 1: +5 deg C 2: -5 deg C
Caution	The new settings become valid only when the main power switch has been turned off and then on. [at time of shipment/after RAM initialization: 0]

15.6.1.1.8 <W/SCNR>

T-15-254

	Use it to specify the presence/absence of a reader unit in the case of a copier model.
Caution	The new settings become valid when the main power switch has been turned off and then on.
Setting	0: printer model 1: model w/ leader [at time of shipment: 1/after RAM initialization: 0]

15.6.1.1.9 <RUI-DSP>

T-15-255

	Use it to permit or not to permit the selection of copier functions on the RUI screen.
Setting	0: disable display of copier screen on RUI 1: enable display of copier screen on RUI [at time of shipment/after RAM initialization: 0]

15.6.1.1.10 <NW-SPEED>

T-15-256

	Use it to select a data transfer speed for connection to a network for service work.
Setting	0: Auto 1: 100Base-TX 2: 10Base-T [at time of shipment/after RAM initialization: 0]

15.6.1.1.11 <ADJ-LVL>

T-15-257

	Use it to select an operation mode for patch detection. Of the automatic adjusting sequences used, decreasing/increasing the frequency of potential control/primary transfer ATVC will lead to decrease/ increase productivity.
Method of Adjustment	A higher setting will increase the adjustment intervals and, thus, increase the productivity; it, however, will also increase color fluctuation. Note: The new setting will not be valid until the power switch has been turned off and then back on.
Settings	0 to 4 at time of shipment/upon RAM initialization: 0

15.6.1.1.12 <INTROT-1>

T-15-258

	intervals of executing ATVC during initial multiple rotation (number of prints) - Increase the setting if soiling in the form of dots occurs in keeping with drum rotation (i.e., by increasing the intervals of ATVC control). - Decrease the setting if transfer faults occurs (i.e., by decreasing the intervals of ATVC control).
Note	The new setting will not be valid until the power switch has been turned off and then back on.
Settings	0 to 240 at time of shipment/upon RAM initialization: 90

15.6.1.1.13 <INTROT-2>

T-15-259

	Use it to set intervals (in terms of the number of sheets) for process auto adjustment (full, at time of initial/last rotation) executed at specific intervals.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	range of settings: 50 to 1000 (in terms of A4) at time of shipment/upon RAM initialization: 200

15.6.1.1.14 <AUTO-DH>

T-15-260

	Use it to enable/disable auto gradation correction for standby. The auto gradation correction mechanism is started in response to changes in the environment or when the machine is left alone in standby for a specific period of time.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: prohibit 1: permit (default) at time of shipment/upon RAM initialization: 1

15.6.1.1.15 <DFDST-L1>

T-15-261

	Use it to adjust the dust detection level (sheet-to-sheet correction) used when the DF is in use.
Method of adjustment	A higher setting enables the detection of smaller particles of dust.
Range of adjustment	0 to 255 [at time of shipment/after RAM initialization: 205]

15.6.1.1.16 <DFDST-L2>

T-15-262

	Use it to adjust the dust detection level (post-job) valid when the DF is in use.
Method of adjustment	A higher setting enables the detection of smaller particles of dust.
Range of adjustment	0 to 255 [at time of shipment/after RAM initialization: 205]

15.6.1.1.17 <ENVP-INT>

T-15-263

	Use it to set the intervals at which logs are obtained for the machine inside temperature/humidify and fixing temperature. (COPIER>FUNCTION>MISC-P>ENV-PRT and COPIER>DISPLAY>ENVRNT)
Range of Setting	0 to 480 (min) [at time of shipment/after RAM initialization: 60]
Reference	If 0, no log is obtained.

15.6.1.1.18 <T1-TEMP>

T-15-264

	Use it to switch over the heavy paper 1 down sequence tables.
Attention	The new setting will not be valid until the power switch has been turned off and then on.

Settings	0: default 1: priority on fixing 2: priority on productivity at time of shipment/upon RAM initialization: 0

15.6.1.1.19 <T2-TEMP>

T-15-265

	Use it to switch over the heavy paper 2 down sequence tables.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: default 1: priority on fixing 2: priority on productivity at time of shipment/upon RAM initialization: 0

15.6.1.1.20 <BLNK-THP>

T-15-266

	Use it to switch over leading edge margins for heavy paper 1/2 (color only; remedy against horizontal lines along leading edge).
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: default margin 1: 7 mm (leading edge margin median value) at time of shipment/upon RAM initialization: 0

15.6.1.1.21 <CD-IDL-T>

T-15-267

	Use it to adjust the duration of idle rotation for IDL-T (color developing assembly YMC; otherwise executed first in the morning in a high humidity environment). - a setting toward '-' will reduce the downtime associated with initial multiple rotation, but will not compensate fully for changes in density. - a setting toward '+' will fully compensate for changes in density, but will increase downtime associated with initial multiple rotation.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
settings range	-3 to +6 (unit: 5 sec) at time of shipment/upon RAM initialization; 0

15.6.1.1.22 <OHP-SPED>

T-15-268

	Use it to switch over the cpm for value BK OHT (remedy against adhesion upon delivery).
Attention	The new setting will not be valid until the main power switch has been turned off and then on.
Settings	0: 40 cpm if w/ finisher; 20 cpm if w/o finisher 1: 20 cpm 2: 10 cpm at time of shipment/upon RAM initialization: 0

15.6.1.1.23 <FX-CROT>

T-15-269

	Use it to change the intervals at which the fixing roller is rotated idly (remedy against deformation of the roller). The fixing roller is rotated idly for 1 sec once every 30 min (default) to prevent it from suffering deformation while the machine remains in standby.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
settings range	0: 30 min 1: 20 min 2: 10 min 3: 5 min at time of shipment/upon RAM initialization: 0

15.6.1.1.24 <DRM-DISP>

T-15-270

	Use it to enable/disable the message for drum phase shifting. If the E310's photopositive drum is used with its home position unchanged in relation to the drum shaft, uneven density at drum intervals or lines can occur in output images. To limit the symptom, the phase of the photosensitive drum is shifted by 90 deg every specific number of prints. The machine does not shift the phase on its own, and requires the work of the service person. When needed, the machine issues a message to prompt the work on the User screen and the Service Mode screen. Use this mode item to enable/disable the message.
Note	The new setting will not be valid until the power switch has been turned off and then back on.

Settings	0: disable message 1: indicate only in service mode (default) 2: indicate on both User and Service Mode screens The message will go off automatically when the following is executed: COPIER>FUNCTION>MISC-P>DR-P-ADJ. at time of shipment/upon RAM initialization: 1 - To change the number of prints after which the message is indicated for COPIER>OPTION>BODY>DRM-DISP, change the denominator in COPIER>COUNTER>MISC>DRM-PHAS.

15.6.1.2 USER

15.6.1.2.1 Overview

Making User-Related Settings

15.6.1.2.2 <COPY-LIM>

T-15-271

	Use it to change the upper limit on the copy count.
Settings	1 to 9999 (prints) at time of shipment/upon RAM initialization: 9999

15.6.1.2.3 <SLEEP>

T-15-272

	Use it to enable/disable the sleep function.
Setting	0: OFF

	1: ON [at time of shipment/after RAM initialization: 1]
Reference	To set up the sleep function, use [timer setting] in user mode.

15.6.1.2.4 <WEB-DISP>

T-15-273

	Use it to enable/disable the indication of the message "Web Out" on the user screen.
Settings	0: do not display 1: display at time of shipment/upon RAM initialization: 1

15.6.1.2.5 <COUNTER 1>

T-15-274

	Use it to set the software counter 1 on the user mode screen.
Setting	101: total 1 [at time of shipment/after RAM initialization: 1 (fixed; cannot be changed)]

15.6.1.2.6 <COUNTER 2>

T-15-275

	Use it to change the type of software counter 2 on the control panel to suit the needs of the user or dealer.
Range of setting	0 to 999 [at time of shipment/after RAM initialization: 108]
Reference	The type of counter may be changed to suit the needs of the user and dealer.

15.6.1.2.7 <COUNTER 3>

T-15-276

	Use it to change the type of soft counter 3 on the control panel to suit the needs of the user or the dealer.
Range of setting	0 to 999 [at time of shipment/after RAM initialization; 232]
Reference	The type of counter may be changed to suit the needs of the user or the dealer.

15.6.1.2.8 <COUNTER 4>

T-15-277

	Use it to change the type of software counter 4 on the control panel to suit the needs of the user or the dealer.
Range of setting	0 to 999 [at time of shipment/after RAM initialization: 324]
Reference	The type of counter may be changed to suit the needs of the user or the dealer.

15.6.1.2.9 <COUNTER 5>

T-15-278

	Use it to change the type of software counter 5 on the control panel to suit the needs of the user or the dealer.
Range of setting	0 to 999 [at time of shipment/after RAM initialization: 0]
Reference	The type of counter may be changed to suit the needs of the user or the dealer.

15.6.1.2.10 <COUNTER 6>

T-15-279

	Use it to change the type of software counter 6 on the control panel to suit the needs of the user or the dealer.
Range of setting	0 to 999 [at time of shipment/after RAM initialization: 0]
Reference	The type of counter may be changed to suit the needs of the user or the dealer.

15.6.1.2.11 Software Counter Specifications

<Software Counter Specifications>

The software counters are classified as follows according to input numbers:

T-15-280

000's: remote copy	500's: scan
100's: total copies	600's: box
200's: copies	700's: received prints
300's: prints	800's: report prints
400's: copier + prints	

Guide to the Table

- yes: counter valid for the machine
- 4C: full color
- mono: mono color (Y, M, C/R, G, B/aged mono)
- Bk: black mono
- L: large-sized (B4 or smaller)
- S: small-size (paper of B4 or smaller)
- 1/2: under "count of," the number of counts given to large-size paper.

You may change the following in service mode so that the paper as large as and larger than B4 is counted as large-size paper: COPIER>OPTION>USER>B4_L_CNT.

- copy: local copy + remote copy
- copy A: local copy + remote copy + box print
- print: PDL print + report print + box print
- print A: PDL print + report print
- scan: black-and-white scan + color scan

T-15-281

yes/no	No.	Description
	000	no indication
yes	002	remote copy (full color 1)
yes	003	remote copy (full color 2)
yes	004	remote copy (mono color 1)
yes	005	remote copy (mono color 2)
yes	006	remote copy (black-and-white 1)
yes	007	remote copy (blank-and-white 2)
yes	008	remote copy (full color, large)
yes	009	remove copy (full color, small)
yes	010	remote copy (mono color, large)
yes	011	remote copy (mono color, small)
yes	012	remote copy (black-and-white, large)
yes	013	remote copy (black-and-white, small)
yes	014	remote copy (full color + mono color, large)
yes	015	remote copy (full color + mono color, small)
yes	016	remote copy (full color + mono color 2)
yes	017	remote copy (full color + mono color 1)
yes	018	remote copy (full color, large, double-sided)
yes	019	remote copy (full color, small, double-sided)
yes	020	remote copy (mono color, large, double-sided)

yes/no	No.	Description
yes	021	remote copy (mono color, small, double-sided)
yes	022	remote copy (black-and-white, large, double-sided)
yes	023	remote copy (black-and-white, small, double-sided)

T-15-282

yes/no	No.	Description
yes	101	total 1
yes	102	total 2
yes	103	total (large)
yes	104	total (small)
yes	105	total (full color 1)
yes	106	total (full color 2)
yes	108	total (black-and -white 1)
yes	109	total (black-and -white 2)
yes	110	total (mono color, large)
yes	111	total (mono color, small)
yes	112	total (black-and-white, large)
yes	113	total (black-and-white, small)
yes	114	total 1 (double-sided)
yes	115	total 2 (double-sided)
yes	116	large (double-sided)
yes	117	small (double-side)
yes	118	total (mono color 1)
yes	119	total (mono color 2)
yes	120	total (full color, large)
yes	121	total (full color, small)
yes	122	total (full color + moo color, large)
yes	123	total (full color + mono color, small)
yes	124	total (full color + mono color 2)

yes/no	No.	Description
yes	125	total (full color + mono color 1)

T-15-283

yes/no	No.	Description
yes	201	copy (total 1)
yes	202	copy (total 2)
yes	203	copy (large)
yes	204	copy (small)
yes	205	copy A (total 1)
yes	206	copy A (total 2)
yes	207	copy A (large)
yes	208	copy A (small)
yes	209	local copy (total 1)
yes	210	local copy (total 2)
yes	211	local copy (large)
yes	212	local copy (small)
yes	213	remote copy (total 1)
yes	214	remote copy (total 2)
yes	215	remote copy (large)
yes	216	remote copy (small)
yes	217	copy (full color 1)
yes	218	copy (full color 2)
yes	219	copy (mono color 1)
yes	220	copy (mono color 2)
yes	221	copy (black-and-white 1)
yes	222	copy (black-and-white 2)
yes	223	copy (full color, large)
yes	224	copy (full color, small)
yes	225	copy (mono color, large)

yes/no	No.	Description
yes	226	copy (moo color, small)
yes	227	copy (black-and-white, large)
yes	228	copy (black-and-write, small)
yes	229	copy (full color + mono color, large)
yes	230	copy (full color + mono color, small)
yes	231	copy (full color + mono color/2)
yes	232	copy (full color + mono color/1)
yes	233	copy (full color, large, double-sided)
yes	234	copy (full color, small, double-sided)
yes	235	copy (mono color, large, double-sided)
yes	236	copy (mono color, small, double-sided)
yes	237	copy (black-and-white, large, double-sided)
yes	238	copy (black-and-white, small, double-sided)
yes	245	copy A (full color 1)
yes	246	copy A (full color 2)
yes	247	copy A (mono color 1)
yes	248	copy A (mono color 2)
yes	249	copy A (black-and-white 1)
yes	250	copy A (black-and-white 2)
yes	251	copy A (full color, large)
yes	252	copy A (full color, mall)
yes	253	copy A (mono color, large)
yes	254	copy A (mono color, small)
yes	255	copy A (black-and-white, large)
yes	256	copy A (black-and-white, small)
yes	257	copy A (full color + mono color, large)
yes	258	copy A (full color + mono color, small)
yes	259	copy A (full color + mono color 2)
yes	260	copy A (full color + mono color 1)

yes/no	No.	Description
yes	261	copy A (full color, large, double-sided)
yes	262	copy A (full color, small, double-sided)
yes	263	copy A (mono color, large, double-sided)
yes	264	copy A (mono color, large, double-sided)
yes	265	copy A (black-and-white, large, double-sided)
yes	266	copy A (black-and-white, small, double-sided)
yes	273	local copy (full color 1)
yes	274	local copy (full color 2)
yes	275	local copy (mono color 1)
yes	276	local copy (mono color 2)
yes	277	local copy (black-and-white 1)
yes	278	local copy (black-and-white 2)
yes	279	local copy (full color, large)
yes	280	local copy (full color, small)
yes	281	local copy (mono color, large)
yes	282	local copy (mono color, small)
yes	283	local copy (black-and-white, large)
yes	284	local copy (black-and-white, small)
yes	285	local copy (full color + mono color, large)
yes	286	local copy (full color + mono color, small)
yes	287	local copy (full color + mono color 2)
yes	288	local copy (full color + mono color 1)
yes	289	local copy (full color, large, double-sided)
yes	290	local copy (full color, small, double-sided)
yes	291	local copy (mono color, large, double-sided)
yes	292	local copy (mono color, small, double-sided)
yes	293	local copy (black-and-white, large, double-sided)
yes	294	local copy (black-and-white, small, doubles-sided)

T-15-284

yes/no	No.	Description
yes	301	print (total 1)
yes	302	print (total 2)
yes	303	print (large)
yes	304	print (small)
yes	305	print A (total 1)
yes	306	print A (total 2)
yes	307	print A (large)
yes	308	print A (small)
yes	309	print (full color 1)
yes	310	print (full color 2)
yes	311	print (mono color 1)
yes	312	print (mono color 2)
yes	313	print (black-and-white 1)
yes	314	print (black-and-white 2)
yes	315	print (full color, large)
yes	316	print (full color, small)
yes	317	print (mono color, large)
yes	318	print (mono color, small)
yes	319	print (black-and-white, large)
yes	320	print (black-and-large, small)
yes	321	print (full color + mono color, large)
yes	322	print (full color + mono color, small)
yes	323	print (full color + mono color/2)
yes	324	print (full color + mono color/1)
yes	325	print (full color, large, double-sided)
yes	326	print (full color, small, double-sided)
yes	327	print (mono color, large, double-sided)
yes	328	print (mono color, small, double sided)

yes/no	No.	Description
yes	329	print (black-and-white, large, double-sided)
yes	330	print (black-and -white, small, double-sided)
yes	331	PDL print (total 1)
yes	332	PDL print (total 2)
yes	333	PDL print (large)
yes	334	PDL print (small)
yes	335	PDL print (full color 1)
yes	336	PDL print (full color 2)
yes	339	PDL print (black-and-white 1)
yes	340	PDL print (black-and-white 2)
yes	341	PDL print (full color, large)
yes	342	PDL print (full color, small)
yes	345	PDL print (black-and-white, large)
yes	346	PDL print (black-and-white, small)
yes	351	PDL print (full color, large, double-sided)
yes	352	PDL print (full color, small, double-sided)
yes	355	PDL print (black-and-white, large, double-sided)
yes	356	PDL print (black-and-white, small, double-sided)

T-15-285

yes/no	No.	Description
yes	401	copy + print (full color, large)
yes	402	copy + print (full color, small)
yes	403	copy + print (black-and-white, large)
yes	404	copy + print (black-and-white, small)
yes	405	copy + print (black-an-white 2)
yes	406	copy + print (black-and-white 1)
yes	407	copy + print (full color + mono color, large)
yes	408	copy + print (full color + mono color, small)

yes/no	No.	Description
yes	409	copy + print (full color + mono color/2)
yes	410	copy + print (full color + mono color/1)
yes	411	copy + print (large)
yes	412	copy + print (small)
yes	413	copy + print (2)
yes	414	copy + print (1)
yes	415	copy + print (mono color, large)
yes	416	copy + print (mono color, small)
yes	417	copy + print (full color, large, double-sided)
yes	418	copy + print (full color, small, double-sided)
yes	419	copy + print (mono color, large, double-sided)
yes	420	copy + print (mono color, small, double-sided)
yes	421	copy + print (black-and-white, large, double-sided)
yes	422	copy + print (back-and-white, small, double-sided)

T-15-286

yes/no	No.	Description
yes	501	scan (total 1)
-	502	scan (total 2)
-	503	scan (large)
-	504	scan (small)
yes	505	black-and-white (total 1)
-	506	black-and-white (total 2)
-	507	black-and-white (large)
-	508	black-and-white scan (small)
yes	509	color scan (total 1)
-	510	color scan (total 2)
-	511	color scan (large)
-	512	color scan (small)

T-15-287

yes/no	No.	Description
yes	601	box print (total 1)
yes	602	box print (total 2)
yes	603	box print (large)
yes	604	box print (small)
yes	605	box print (full color 1)
yes	606	box print (full color 2)
yes	607	box print (mono color 1)
yes	608	box print (mono color 2)
yes	609	box print (black-and-white 1)
yes	610	box print (black-and-white 2)
yes	611	box print (full color, large)
yes	612	box print (full color, small)
yes	613	box print (mono to color, large)
yes	614	box print (mono color, small)
yes	615	box print (black-and-white, large)
yes	616	box print (black-and-white, small)
yes	617	box print (full color + moo color, large)
yes	618	box print (full color + mono color, small)
yes	619	box print (full color + mono color 2)
yes	620	box print (full color + mono color 1)
yes	621	box print (full color, large, double-sided)
yes	622	box print (full color, small, double-sided)
yes	623	box print (mono color, large, double-sided)
yes	624	box print (mono color, small, double-sided)
yes	625	box print (black-and-white, large, double-sided)
yes	626	box print (back-and-white, small, double-sided)

T-15-288

yes/no	No.	Description
yes	701	reception print (total 1)
yes	702	reception print (total 2)
yes	703	reception print (large)
yes	704	reception print (small)
-	705	reception print (full color 1)
-	706	reception print (full color 2)
-	707	reception print (grayscale 1)
-	708	reception print (grayscale 2)
yes	709	reception print (black-and-white 1)
yes	710	reception print (black-and-white 2)
-	711	reception print (full color, large)
-	712	reception print (full color, small)
-	713	reception print (grayscale, large)
-	714	reception print (grayscale, small)
yes	715	reception print (black-and-white, large)
yes	716	reception print (black-and-white, small)
-	717	reception print (full color + grayscale, large)
-	718	reception print (full color + grayscale, small)
-	719	reception print (full color + grayscale 2)
-	720	reception print (full color, grayscale 1)
-	721	reception print (full color, large, double-sided)
-	722	reception print (full color, small, double-sided)
-	723	reception print (grayscale, large, double-sided)
-	724	reception print (grayscale, small, double-sided)
yes	725	reception print (black-and-white, large, double-sided)
yes	726	reception print (black-and-white, small, double-sided)

T-15-289

yes/no	No.	Description
yes	801	report print (total 1)
yes	802	report print (total 2)
yes	803	report print (large)
yes	804	report print (small)
-	805	report print (full color 1)
-	806	report print (full color 2)
-	807	report print (grayscale 1)
-	808	report print (grayscale 2)
yes	809	report print (black-and-white 1)
yes	810	report print (black-and-white 2)
-	811	report print (full color, large)
-	812	report print (full color, small)
-	813	report print (grayscale, large)
-	814	report print (grayscale, small)
yes	815	report print (black-and-white, large)
yes	816	report print (black-and-white, small)
-	817	report print (full color + grayscale, large)
-	818	report print (full color + grayscale, small)
-	819	report print (full color + grayscale 2)
-	820	report print (full color + grayscale 1)
-	821	report print (full color, large, double-sided)
-	822	report print (full color, small, double-sided)
-	823	report print (grayscale, large, double-sided)
-	824	report print (grayscale, small, double-sided)
yes	825	report print (black-and-white, large, double-sided)
yes	826	report print (black-and-white, small, double-sided)

T-15-290

yes/no	No.	Description
-	901	copy scan total 1 (color)
-	902	copy scan total 1 (black-and-white)
-	903	copy scan total 2 (color)
-	904	copy scan total 2 (black-and-white)
-	905	copy scan total 3 (color)
-	906	copy scan total 3 (black-and-white)
-	907	copy scan total 4 (color)
-	908	copy scan total 4 (black-and-white)
-	909	local copy scan (color)
-	910	local coy scan (black-and-white)
-	911	remote copy scan (color)
-	912	remote copy scan (black-and-white)
-	913	transmission scan total 1 (color)
-	914	transmission scan total 1 (black-and-white)
yes	915	transmission scan total 2 (color)
yes	916	transmission scan total 2 (black-and-white)
yes	917	transmission scan total 3 (color)
yes	918	transmission scan total 3 (black-and-white)
-	919	transmission scan total 4 (color)
-	920	transmission scan total 4 (black-and-white)
yes	921	transmission scan total 5 (color)
yes	922	transmission scan total 5 (black-and-white)
yes	929	transmission scan total 6 (color)
yes	930	transmission scan total 6 (black-and-white)
-	931	transmission scan total 7 (color)
-	932	transmission scan total 7 (black-and-white)
-	933	transmission scan total 8 (color)
-	934	transmission scan total 8 (black-and-white)

yes/no	No.	Description
-	935	universal transmission scan total (color)
-	936	universal transmission scan total (black-and-white)
yes	937	box scan (color)
yes	938	box scan (black-and-white)
yes	939	remote scan (color)
yes	940	remote scan (black-and-white)
-	941	transmission scan/fax (color)
-	942	transmission scan/fax (black-and-white)
-	943	transmission scan/i fax (color)
-	944	transmission scan/i fax (black-and-white)
yes	945	transmission scan/e-mail (color)
yes	946	transmission scan/e-mail (black-and-white)
-	947	transmission scan/FTP (color)
-	948	transmission scan/FTP (black-and-white)
-	949	transmission scan/SMB (color)
-	950	transmission scan/SMB (black-and-white)
-	951	transmission scan/IPX (color)
-	952	transmission scan/IPX (white-and-white)
-	953	transmission scan/database (color)
-	954	transmission scan/database (black-and-white)
-	955	transmission scan/local print (color)
-	956	transmission scan/local print (black-and-white)
-	957	transmission scan/box (color)
-	958	transmission scan/box (black-and-white)

15.6.1.2.12 <CONTROL>

T-15-291

	Use it to limit the use of a control card for a PDL job.
setting	0: disable 1: enable [at time of shipment/after RAM initialization: 0]

15.6.1.2.13 <B4-L-CNT>

T-15-292

	Use it to set so that soft counters 1 through will count B4 as being of large size or small size.
Setting	0: small size 1: large size [at time of shipment/after RAM initialization: 0]

15.6.1.2.14 <COPY-JOB>

T-15-293

	Use it to disable the copy job reservation function when the card reader or the coin vendor is in use.
Setting	0: enable copy job reservation function 1: disable copy job reservation function [at time of shipment/after initialization: 0]

15.6.1.2.15 <TAB-ROT>

T-15-294

	Use it to enable/disable 180-deg rotation of a landscape image for a tab sheet.

Settings	0: do not rotate 1: rotate at time of shipment/upon RAM initialization: 0

15.6.1.2.16 <IDPRN-SW>

T-15-295

	Use it to switch between types of count jobs for group counters.
Setting	0: count the following for PRINT: box print, report print, send local print, PDL print. 1: count the following for PRINT: report printout, send local print, PDL print [at time of shipment/after RAM initialization: 0]

15.6.1.2.17 <CPRT-DSP>

T-15-296

	Use it to enable/disable indication of the count button on the Sales Counter Check screen.
Settings	0: do not indicate 1: indicate at time of shipment/upon RAM initialization: 1

15.6.1.2.18 <CNT-SW>

T-15-297

	Use it to switch between counter display items.
	counters to use

when set to '0'	101 total 1 108 total <black-and-white 1> 232 copy <full color + mono color/1> 324 print <full color + mono color/1>
when set to '1'	102 total 2 231 copy <full color + mono color/2> 222 copy <black-and-white 2> 133 total A <black-and-white 2> [at time of shipment/after RAM initialization: 0]

15.6.1.2.19 <BCNT-AST>

T-15-298

	Use it to set a count for Box printing in relation to the NE controller.
Setting	0: count box print job as PDL job 1: count box print job as copy job [at time of shipment/after RAM initialization: 0]

15.6.1.2.20 <DFLT-CPY>

T-15-299

	Use it to set the default color mode for COPY.
setting	0: ACS 1: full color 2: black-and-white JPN [at time of shipment/after RAM initialization: 2] UL [at time of shipment/after RAM initialization: 0] EUR [at time of shipment/after RAM initialization: 2] other destination [at time of shipment/after RAM initialization: 2]

15.6.1.2.21 <DFLT-BOX>

T-15-300

	Use it to set the default color mode for BOX.
setting	0: ACS 1: full color 2: black-and-white JPN [at time of shipment/after RAM initialization: 2] UL [at time of shipment/after RAM initialization: 0] EUR [at time of shipment/after RAM initialization: 2] other destinations [at time of shipment/after RAM initialization: 2]

15.6.1.2.22 <DOC-REM>

T-15-301

	Use it to enable/disable the message used to prompt removal of originals.
setting	0: disable 1: enable [at time of shipment/after RAM initialization: 0]

15.6.1.3 CST

15.6.1.3.1 Overview

Registering the Envelope Cassette Size

15.6.1.3.2 <P-SZ-C1>

T-15-302

	Use it to select and register paper size for the cassette 1.
Settings	0: A4 1: B5 2: LTR at time of shipment/upon RAM initialization: 0

15.6.1.3.3 <P-SZ-C2>

T-15-303

	Use it to select and register paper size for the cassette 2.
Settings	0: A4 1: B5 2: LTR at time of shipment/upon RAM initialization: 0

15.6.1.4 ACC

15.6.1.4.1 Overview

Making Accessory-Related Machine Settings

15.6.1.4.2 <COIN>

T-15-304

Use it set up the coin vendor mechanism.

Settings	0: coin vendor not used (control card permitted; no charging) 1: coin vendor (charging used) 2: remote counter (charging used) at time of shipment/upon RAM initialization: 0

15.6.1.4.3 <DK-P>

T-15-305

	Use it to set the paper size for the paper deck (option).
setting	0: A4 [at time of shipment/after RAM initialization: 0] 1: not supported 2: LTR

15.6.1.4.4 <CARD-SW>

T-15-306

	Use it to switch between UI screens for support of the coin vendor function.
setting	0: coin [at time of shipment/after RAM initialization: 0] 1: card 2: coin & card

15.6.1.5 INT-FACE

15.6.1.5.1 Overview

Setting Up Conditions for Connection to an External Controller

15.6.1.5.2 <IMG-CONT>

T-15-307

	Use it to make settings for connection to an EFI controller.
setting	0: normal operation 1: not used 2: not used 3: EFI controller in use 4: not used 5: not used
Caution	If set to '1', the following returns to its initial setting: - system control setup>network setup>TCP/IP setup>IP address setup>IP address

- system control setup>network setup>TCP/IP setup>IP address setup>sub net mask
- system control setup>network setup>IP address setup>gateway address
- system control setup>network setup>TCP/IP setup>Ethernet driver setup>communication system
- system control setup>network setup>TCP/IP setup>Ethernet driver setup>Ethernet type
- system control setup>network setup>TCP/IP setup>start-up time

Moreover, the following user mode settings will be set to OFF.

- system control setup>network setup>TCP/IP setup>IP address setup>DHCP in use
- system control setup>network setup>TCP/IP setup>IP address setup>RARP in use
- system control setup>network setup>TCP/IP setup>IP address setup>BOOTP in use
- system control setup>network setup>TCP/IP setup>Ethernet driver setup>auto detection
- system control setup>network setup>spool function in use
- If set to '3' or '4', the following settings will be OFF in addition to the foregoing:
- system control setup>network setup>TCP/IP setup>RAW setup
- system control setup>network setup>TCP/IP setup>LPD setup
- system control setup>network setup>TCP/IP setup>IPP print
- system control setup>network setup>SMB setup

You will have to newly make settings for the foregoing items, as they will not return to their initial settings even when '0: normal mode' is selected.

- system control setup>network setup>TCP/IP setup>IP address setup>sub net mask
- system control setup>network setup>TCP/IP setup>IP address setup>gateway address
- system control setup>network setup>TCP/IP setup>Ethernet driver setup>communication method
- system control setup>network setup>TCP/IP setup>Ethernet driver setup>Ethernet type
- system control setup>network setup>TCP/IP setup>startup

Moreover, the following user mode settings will be OFF:

- system control setup>network setup>TCP/IP setup>IP address setup>DHCP in use
- system control setup>network setup>TCP/IP setup>IP address setup>RARP in use
- system control setup>network setup>TCP/IP setup>IP address setup>BOOTP in use
- system control setup>network setup>TCP/IP setup>Ethernet driver setup>auto detection
- system control setup>network setup>spool function in use
- If '3' or '4' is set, the following settings will be OFF in addition to the foregoing items:
- system control setup>network setup>TCP/IP setup>RAW setup
- system control setup>network setup>TCP/IP setup>LPD setup
- system control setup>network setup>TCP/IP setup>IPP print
- system control setup>network setup>SMB setup

You will have to newly make settings for the foregoing items, as they will not return to their initial settings even when '0: normal mode' is selected.

15.6.2 FEEDER

15.6.2.1 <LS-DBL>

T-15-308

	Use it to enable/disable ADF high-speed duplex mode.
	The mode may be disabled if the user uses an original size that is not suited to ADF high-speed duplex mode.
settings range	1: off (do not execute high-speed duplex mode; use low-speed duplex mode) 0: on (execute high-speed duplex mode; normal, default)

15.6.2.2 <STAMP-SW>

T-15-309

	Use it to specify the presence/absence of the stamp.
	This mode item indicates the presence/absence of the stamp, and is designed for use by the service person.
settings	0:stamp absent 1:stamp present at time of shipment/upon RAM initialization: 0

15.6.3 SORTER

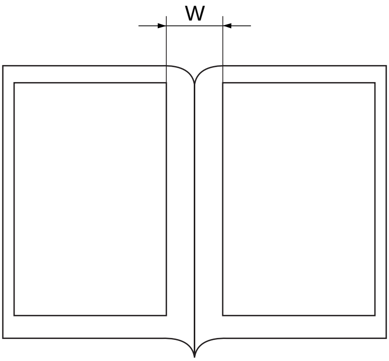
15.6.3.1 Overview

Making Finisher-Related Machine Settings

15.6.3.2 <BLNK-SW>

T-15-310

	Use it to set the marking width (W) for both sides of the crease for the saddle stitcher in use.
Setting	0: normal width (5 mm) 1: large width (10 mm) [at time of shipment/after RAM initialization: 1]



F-15-24

15.6.3.3 <MD-SPRTN>

T-15-311

	Use it to limit the finisher functions.
setting	0: normal 1: enable functional separation [at time of shipment/after RAM initialization: 0]

15.6.4 BOARD

15.6.4.1 Overview

15.6.4.2 <SURF-OFF>

T-15-312

	Use it to enable/disable the UFR board function.
setting	0: enable operation as copier model without E code indication in absence of UFR board 1: check presence of UFR board; if absent, indicate E code [at time of shipment/after RAM initialization: 0]

15.6.5 OPTION（mechanical specifications setting mode）:Level 2

15.6.5.1 COPIER

15.6.5.1.1 BODY

<W-CLN-P>

T-15-313

	Use it to set the intervals at which the primary charging wire/pre-transfer charging wire is automatically cleaned in a normal environment in terms of the number of copies. The new setting will not be valid until the main power switch has been turned off and then back on.
Note	The new setting will not be valid until the power switch has been turned off and then back on.
Range of settings	100p to 2000 at time of shipment/RAM initialization: 2000

<PRI-FAN>

T-15-314

	Use it to select a primary fan drive mode. Use it to prevent soiling in the form of dots occurring in keeping with drum rotation. The temperature of the cleaning blade may be decreased so that the machine will better be able to remove the ingredients of the black toner sticking to the drum.
Note	The new setting will not be valid until the power switch has been turned off and then back on.
Settings	0: in high temperature/humidity environment, half-speed 1: in high temperature/humidity environment, full-speed at time of shipment/upon RAM initialization 0

<SCANSLCT>

T-15-315

	Use it to enable/disable the function the machine uses to compute the scan area based on the selected paper size.
setting	0: OFF (determine scan based on original size) 1: ON (determine scan area based on paper size) [at time of shipment/after RAM initialization: 0]

<OHP-TEMP>

T-15-316

Use it to switch over down sequence tables for transparencies and heavy paper 3.

Note	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: default 1: priority on fixing 2: priority on productivity at item of shipment/upon RAM initialization: 0

<DH-SW>

T-15-317

	Use it to execute Dhalf.
Settings	0: do not execute Dhalf control 1: execute Dhalf control at time of shipment/upon RAM initialization: 1

<DM-MODE>

T-15-318

	Use it to enable/disable image density correction control as part of auto gradation correction (PASCAL)
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: do not execute 1: execute at time of shipment/upon RAM initialization: 0

<SENS-CNF>

T-15-319

	Use it to select the original sensor configuration.
setting	0: AB-configuration [at time of shipment/after RAM initialization: 0] 1: Inch-configuration

<DM-SW>

T-15-320

	Use it to enable/disable image gradation correction or image density correction executed after making a specific number of copies.
Note	The new setting will not be valid until the power switch has been turned off and then on again.
Setting	0:disable 1:execute every 200 prints up to initial 2000 prints 2:execute every 200 prints up to initial 4000 prints 3:execute at al times (every 200 prints) 4:reserved at time of shipment/upon RAM initialization: 3 To change the intervals of execution (default at 200 prints), use COPIER>OPTION>BODY>INTROT2.

<RAW-DATA>

T-15-321

	Use it to specify how received data should be printed out.
setting	0: normal operation 1: print as is [at time of shipment/after RAM initialization: 0]

If received images have a fault, use it to isolate the cause between data itself and image processing.

<BK-BND>

T-15-322

Use it to increase the black belt in 4C mode.
Use it to prevent photosensitive drum cleaning faults in an N/L environment.

Note	The new setting will not be valid until the power switch has been turned off and then back on.
Settings	0: increase by 100% 1: increase by 150% 2: increase by 20% at time of shipment/upon RAM initialization: 0

<FDW-DLV>

T-15-323

Use it to select face-up or face-down delivery when multiple sets are specified.

When multiple sets are specified, the machine uses face-up delivery. To ensure a specific level of stacking performance, however, the machine offers a mode for face-down delivery.
(This choice is not valid if a finisher is installed.)

Note	The new setting will not be valid until the power switch has been turned off and then back on.
Settings	0:use face-up delivery if no more than 1 original 1:use face-up delivery if no more than 1 original, but face-down delivery if set for multiple sets at time of shipment/upon RAM initialization: 0

<RMT-LANG>

T-15-324

Method of setting	Use it to select a language code by means of the +/- key of the remote UI used through the Web.

<IFAX-LIM>

T-15-325

	Use it to limit the number of output lines for a large volume of data coming through i-fax.
setting	0: no limit
	0 to 999 [at time of shipment/after RAM initialization: 500]

<TR-CLN>

T-15-326

	Use it to execute the cleaning sequence designed to avoid soiling on the back of paper caused by the secondary transfer roller.
	77-mm back soiling preventive mode
Settings	0: execute only in H/H environment 1: disable in all environments 2: enable in all environments at time of shipment/upon RAM initialization: 0

<SMTPTXPN>

T-15-327

	Use it to change the SMTP transmission port number.
Range of setting	0 to 65535 (increments of '1') [at time of shipment/after RAM initialization: 25]

<SMTPRXPN>

T-15-328

	Use it to change the SMTP reception port number.
Range of setting	0 to 65535 (in increments of '1') [at time of shipment/after RAM initialization: 25]

<POP3PN>

T-15-329

	Use it to change the POP reception port number.
Range of setting	0 to 65535 (in increments of '1') [at time of shipment/after RAM initialization: 110]

<ORG-LGL>

T-15-330

	Use it to set a special paper whose size may not be recognized by the DF.
setting	0: LEGAL [at time of shipment/after RAM initialization] 1: FOOLSCAP

2: A-FOOLSCAP

3: FORIO

4: G-LEGAL

5: OFFICIO

6: E-OFFICIO

7: A-OFFICIO

8: B-OFFICIO

9: A-LEAGAL

10: M-OFFICIO

<ORG-LTR>

T-15-331

	Use it to set a special paper whose size may not be recognized by the DF.
setting	0: LTR [at time of shipment/after RAM initialization]
	1: G-LTR
	2: A-LTR
	3: EXECUTIVE

<ORG-LTRR>

T-15-332

	Use it to set a special paper size not recognized by the DF size detection mechanism.
Settings	0: LTR (at time of shipment/upon RAM initialization)
	1: G-LTR
	2: A-LTR

3: EXECTIVE

<ORG-B5>

T-15-333

Use it to set a special paper whose size may not be recognized by the DF.

setting 0: B5 [at time of shipment/after RAM initialization]
1: K-LEAGAL

<UI-BOX>

T-15-334

Use it to enable/disable the control panel box screen.

setting 0: disable

1: enable [at time of shipment/after RAM initialization]

<UI-SEND>

T-15-335

Use it to enable/disable the display of the transmission screen on the control panel.

setting 0: disable

1: enable [at time of shipment/after RAM initialization]

<UI-FAX>

T-15-336

	Use it to enable/disable the display of the environment screen on the control panel.
setting	0: disable 1: enable [at time of shipment/after RAM initialization]

<UI-EXT>

T-15-337

	Use it to enable/disable the display of the extended screen on the control panel.
setting	0: disable 1: enable [at time of shipment/after RAM initialization]

<SCR-SLCT>

T-15-338

	Use it to specify how halftone must be processed in photo mode.
setting	0: use error diffusion 1: use low-number screen [at time of shipment/after RAM initialization] 2: use high-number screen

<TMC-SLCT>

T-15-339

	Use it to switch between coefficients for error diffusion.
setting	0: standard

1: Texture Feel Smooth (less coarse)/stability low

2: Texture Feel Rough (more coarse)/stability high

<D-CLN-TM>

T-15-340

	Use it to change the length of drum idle rotation. Use it to prevent soiling in the form of dots occurring in keeping with drum rotation. The machine executes idle rotation when it is turned on to remove residual matter from the drum.
Note	The new setting will not be valid until the power switch has been turned off and then back on.
Settings	0: do not execute idle rotation 1: execute idle rotation for 30 sec 2: execute idle rotation for 60 sec at time of shipment/upon RAM initialization: 0 Settings 3 through 6 are reserved (currently invalid).

<DEVL-VTH>

T-15-341

	Use it to set a threshold for image density over which the machine will execute discharge sequence (designed as a remedy against rough image texture on copies of low-density images made in continuous printing). If possible, do not use it as long as machine operation is normal.
Attention	The new setting will not be valid until the machine is turned on and then off.
settings range	1 to 5 (unit: %) at time of shipment/upon RAM initialization: 2)

<FTPTXPN>

T-15-342

	Use it to select a name for the target SEND port (FTP).
Range of Setting	0 through 65535 (16-bit) [at time of shipment/after RAM initialization: 21]

<PRN-FLG>

T-15-343

	Selecting an Image Area Flag (for PDL images) In the event that the controller fails to compress a PDL image at a specific rate of compression, image processing will be performed according to the image area flag selected in this mode item.
Attention	The new setting will not be valid until the power switch is turned off and then on.
settings range	0: use high-number screen, gray compensation LUT (default) 1: use error diffusion, gray compensation LUT 2: use high-number screen, normal LUT at time of shipment/upon RAM initialization: 0

<SCN-FLG>

T-15-344

Use it to select an image area flag (for copy image).

If compression at a specific rate fails on the controller over a scan image, image processing will be executed according to the image flag selected in this mode.

Attention	The new setting will not be valid until the power switch has been turned off and then on.
settings range	0: text 1: screened photo image 2: printed photo image at time of shipment/upon RAM initialization: 0

<T-LW-LVL>

T-15-345

Use it to change the setting at which an alert message is issued for the level of toner.

The threshold (%) of the level of toner over which the message is issued to indicate that toner is running short may be changed. A delay, however, can also result in the absence of toner immediately after the alert message.

Attention	The new setting will not be valid until the power switch has been turned off and then on.
settings range	5 to 100 at time of shipment/upon RAM initialization: 10

<NWERR-SW>

T-15-346

Use it to enable/disable network-related error messages.

setting	0: disable
	enable [at time of shipment/after RAM initialization]

<FX-SPD>

T-15-347

	Use it to adjust the speed of the fixing roller.
	If the arching of paper between the secondary transfer roller and the fixing roller is too great, the trailing edge of the paper tends to come into contact with the intermediate transfer belt, causing traces by friction. A change to the speed of fixing will also change the speed of the delivery vertical path roller (fine-adjustment) accordingly. A higher setting will increase the speed.
Attention	The setting will not be valid until the power switch has been turned off and then on.
settings range	-3 to 3 at time of shipment/upon RAM initialization: 0

<STS-PORT>

T-15-348

	Use it to set the TOT synchronous type command communication port.
setting	0: OFF 1: ON

<CMD-PORT>

T-15-349

	Use it to set the TOT asynchronous type status communication port.
setting	0: OFF 1: ON

<MODELSZ2>

T-15-350

	Use it to set the global support function for book mode original detection.
setting	0: normal 1: AB-configuration/Inch-configuration mixed detection

<SZDT-SW>

T-15-351

	Use it to enable/disable the switch-over from CCD size detection to photo size detection for copyboard original size detection.
Attention	The setting will not be valid until the power switch has been turned off and then on.
settings range	0: disable photo size detection 1: enable photo size detection at time of shipment/upon RAM initialization: 0

<UISW-DSP>

T-15-352

not used

<ITB-CLN>

T-15-353

	Use it to execute the ITB black band sequence at time of initial multiple rotation automatic adjustment.
Settings	0: disable 1: force execution once 2 and 3: reserved (input invalid) at time of shipment/upon RAM initialization: 0

<NS-CMD5>

T-15-354

	Use it to set CRAM-MD5 authentication under SMTP authentication.
setting	0: dependent on SMTP server 1: disable

<NS-GSAPI>

T-15-355

	Use it to set GSSAPI authentication under SMTP authentication.
setting	0: dependent on SMTP server 1: disable

<NS-NTLM>

T-15-356

Use it to set NTLM authentication under SMTP authentication.

setting	0: dependent on SMTP server 1: disable it

<NS-PLNWS>

T-15-357

Use it to set PLAIN LOGIN authentication under SMTP authentication.
<environment in which communication packets are subjected to coding>

setting	0: dependent on SMTP server 1: disable

<NS-PLN>

T-15-358

Use it to set PLAIN LOGIN under SMTP authentication.
<environment in which communication packages are not subjected to coding>

setting	0: dependent on SMTP server 1: disable

<NS-LGN>

T-15-359

Use it to set LOGIN authentication under SMTP authentication.

setting	0: dependent on SMTP server 1: disable

<T-CRG-SW>

T-15-360

	Use it to permit or not to permit replacement of the toner cartridge by the user when there still is toner in the cartridge.
Settings	0: do not permit replacement by user (When the toner runs out (in the case of black toner, is running low), a button will appear to permit replacement of the toner cartridge: i.e., system status/stop>recovery procedure indication). 1: permit replacement by user (A button will appear to permit replacement; i.e., user mode>adjust/cleaning.) at time of shipment/upon RAM initialization: 0

<TNR-DWN>

T-15-361

	Use it to set the amount of toner to be deposited. You can decrease the amount of toner, as when stray toner tends to occur in full color mode or when paper tends to wrap around the fixing roller.
Settings	0: standard amount (default) 1: decrease for both single-sided and double-sided modes 2: standard for single-sided mode but decrease in double-sided mode for both 1st and 2nd sides (reserved) at time of shipment/upon RAM initialization: 0
Attention	An update has been made to do away with setting 2 as a result of recent findings (i.e., the expected operation does not take place in some PDL or copy jobs; although the setting exists in service mode, it behaves like 0).

<TMIC-BK>

T-15-362

	Use it to set end edge correction for BkLUT for Tmic PDL and BkLUT for Copy under Tmic.
setting	0: PDL ON, Copy OFF PDL ON, Copy OFF [at time of shipment/after RAM initialization] 1: PDL OFF, Copy OFF 2: PDL ON, Copy ON 3: PDL OFF, Copy ON

<DH-MODE>

T-15-363

	Use it to select patch image read data (high density side) for patch image detection gradation correction (other than full correction).
setting	0: use patch image read data used for patch image read data [at time of shipment/after RAM initialization] 1: do not use patch image reading data used for full correction

<W-CLN-PH >

T-15-364

	Use it to set the intervals at which the primary charging wire/pre-transfer charging wire is automatically cleaned. If an image fault (e.g., vertical lines) occurs in a high temperature/humidity environment, the intervals at which the primary charging wire/pre-transfer charging wire is automatically cleaned may be changed. Note:In a normal environment, be sure to use W-CLN-P to set the intervals used to automatically clean the primary charging wire.

Note	The new setting will not be valid until the power switch has been turned off and then back on.
Range of settings	100 to 1000 at time of shipment/upon RAM initialization: 1000

<B-SPL-SW>

T-15-365

	Use it to set the environment table for black toner supply.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: variable 1: fixed at time of shipment/upon RAM initialization: 0

<B-CNT-SW>

T-15-366

	Use it to set the environment table for black development contrast.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: variable 1: fixed at time of shipment/upon RAM initialization: 0

<1ROT-CR>

T-15-367

Use it to change the retention current for primary transfer retention current idle rotation.

If the user disconnects the power plug at night and thus the drum heater goes off, the temperature of the primary transfer roller is not likely to match that of the drum when the power is turned on the next morning; and the resulting temporary change in the resistance of the primary transfer roller at times prevents proper execution of ATVC. If the level of current set by default is not high enough, use this item to increase it.

Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: refer to environment sensor 1: 60uA 2: 70uA 3: 80uA 4: 90uA 5: 100uA 6: 110uA 7: 120uA at time of shipment/upon RAM initialization: 0

<1ROT-TIM>

T-15-368

Use it to change the duration of primary transfer power retention current idle rotation.

Attention	The new setting will not be valid until the power has been turned off and then on.

Settings	0: refer to the environment table. 1: 40sec 2: 60sec 3: 120sec 4: 180sec 5: 300sec 6: 420sec 7: 600sec at time of shipment/upon RAM initialization: 0

<2ROT-TIM>

T-15-369

	Use it to change the secondary transfer power retention idle rotation.
Attention	The new setting will not be valid until the power is turned off and then on.
Settings	0: refer to the environment table. 1: 40sec 2: 60sec 3: 120sec 4: 180sec 5: 300sec 6: 420sec 7: 600sec at time of shipment/upon RAM initialization: 0

<DEV-K-TM>

T-15-370

Use it to set the duration of toner discharge executed as part of the ITB black band cleaning sequence.

Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	1: 10 2: 20 at time of shipment/upon RAM initialization: 1

<CDEV-IDL>

T-15-371

Use it to enable/disable power-on idle rotation of the color developing assembly (YMC).
Use it to adjust the intervals of patch ATR for the No. 1 limit. A higher limit will increase the execution intervals, but will affect the density. On the other hand, although a lower limit will decrease the intervals, the density will be more stable.
1. the number of prints (CNT) reset upon execution of patch detection
2. cumulative video count CNT)

Timing
1. execute patch detection during last rotation of the ongoing job when the No. 1 limit (20 prints) is exceeded.
2. force patch detection by interrupting the job as soon as the No. 2 limit is exceeded.
3. force patch execution as soon as the cumulative VC exceeds 300% (in terms of A4).
1 print = 3 images (YMC only); for image count, 1 for small and 2 for large)

Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: off 1: on at time of shipment/upon RAM initialization: 1

<PCHINT-1>

T-15-372

	Use it to change the intervals of 1-patch detection (No. 1 limit) in terms of the number of prints. Use it to change the intervals of patch ATR for the No. 1 limit. A higher limit will increase the downtime intervals, but will affect the density. On the other hand, although a lower limit may decrease the downtime intervals, the density will be more stable. The following triggers are used to initiate patch detection: 1. when the 1st limit (20 prints) is exceeded, execute patch detection during the last rotation of the ongoing job. 2. when the 2nd limit is exceed, stop the ongoing job and force patch detection. (1 print = 3 images (YMC only); for image count, 1 for small and 2 for large) The above No. 1 limit may be changes. A higher limit will increase downtime intervals, but will affect density. On the other hand, although a lower limit will decrease downtime intervals, the density will be more stable. By default, the No. 1 limit is 20 prints (60 images), variable between -10 and + 10 (offset).
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	10 to +10 at time of shipment/upon RAM initialization: 0

<PCHINT-2>

T-15-373

	Use it to adjust the intervals of patch detection (No. 2 limit). Use it to change the patch ATR intervals for the No. 2 limit. For the triggers used to initiate patch detection, see the list for PCHINT-1.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	10 to +10 at time of shipment/upon RAM initialization: 0

<PCHINT-V>

T-15-374

	Use it to adjust the intervals of patch detection (video counter cumulative count).
	Use it to change the intervals of patch ATR in relation to the video counter cumulative count.
Attention	The new setting will not be valid until the power switch is turned off and then on.
Settings	10 to +10 at time of shipment/upon RAM initialization: 0

<POT-OFTM>

T-15-375

	Use it to adjust the length of time for the detection of a disconnected connector or to adjust the potential sensor offset.
	By default, the machine executes idle rotation of the fixing roller for 1 seconce every 30 min to prevent deformation of the roller while in standby.
Note	The new setting will not be valid until the power switch has been turned off and then on.
settings	5 to 50 (unit: sec) at time of shipment/upon RAM initialization: 5

<FXWRNLVL>

T-15-376

	Use it to set the fixing upper roller alert level.
	Use it to change the alert level in relation to the fixing counter reading. If you have replaced the fixing roller or the fixing unit with a modified type (with a longer life), use this mode to set the level to suit the new type
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: 180,000 1: 150,000 2: 120,000 at time of shipment/upon RAM initialization: 0

<FXERRLVL>

T-15-377

	Use it to change the fixing roller error level setting. Use it to change the error level of the fixing counter count. If you have replaced the fixing roller or the fixing unit with a modified type (with a longer life), change the setting to suit the new type. The threshold of the fixing error level will be in relation to the setting made using the following service mode (offset by the level you set here): COPIER>OPTION>BODY>FXWRNLVL.
Attention	The new setting will not be valid until you turn off and then on the power switch.
Settings	0: +20K 1: +40K 2: +60K 3: no error (alert retained) at time of shipment/upon RAM initialization: 0

<PCHINTV2>

T-15-378

	Use it to change the intervals of post rotation patch detection (video counter count). Use it to change the intervals of patch ATR in relation to the cumulative video count. When a specific video count is exceeded, ATR patch detection is executed during last rotation at the end of the ongoing job, and the limit of the cumulative video count may be changed. A higher limit will increase the downtime intervals, but will affect the density. On the other hand, although a lower limit will decease the downtime intervals, the density will be more stable.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	-10 to +10 (level: 10% duty/A4) default: 200% duty (A4, 5% duty x 40 prints) at time of shipment/RAM initialization: 0

<DLV-SPSW >

T-15-379

	Use it to change the delivery speed.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: delivery speed with priority on FCOT (627 mm/sec) 1: delivery speed with priority on paper edge damage avoidance (267 mm/sec) at time of shipment/upon RAM initialization: 0

<FXMSG-SW >

T-15-380

	Use it to enable/disable the message that prompts replacement of the fixing assembly.
	Use it to enable/disable the message on the control panel indication the need for the replacement of the fixing assembly. Normally, the setting is enabled; however, you can disable the message if there is no need for replacement (so that the user will not feel unnecessarily concerned and place a service call). If replacement is necessary, be sure to replace it and enable the setting.
Attention	The new setting will not be valid until the power has been turned off and then on.
Settings	0: do not indicate 1: indicate a time of shipment/upon RAM initialization: 1

<G-LUT-LV>

T-15-381

	Use it to change the gamma LUT auto correction function (used for a check on a steep slope). Use it to change the threshold used to find out whether the gamma LUT slope is too steep as part of the gamma LUT auto correction function.
Attention	The new setting will not be valid until the power switch is turned off and then on.
Settings	0: 2.8 1: 2.6 2: 2.4 3: 2.2 4: 2.0 at time of shipment/upon RAM initialization: 2

<G-LUT-SW>

T-15-382

	Use it to change the gamma LUT auto correction function. Use it to adjust the control on image formation in relation to the state (on/off) of the gamma LUT auto correction function.
Attention	The new setting will not be valid until the power switch is turned off and then on.
Settings	0: off (do not apply gamma LUT auto correction) 1: copy T-mic (apply gamma LUT auto correction) 2: copy PDL T-mic (apply gamma LUT auto correction) 3: all (apply gamma a LUT auto correction) at time of shipment/upon RAM initialization; 1

<G-LUT-MX>

T-15-383

	Use it to change the gamma LUT auto correction function (maximum correction slope). Use it to set the maximum correction slope used to determine the final correction point for gamma LUT auto correction function.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: 2.4 1: 2.2 2: 2.0 3: 1.8 4: 1.6 at time of shipment/upon RAM initialization: 2

<G-LUT-OF>

T-15-384

	Use it to change the gamma LUT auto correction function (secondary curve correction start point offset). Use it to set a degree of offset in relation to the bottommost start point for secondary curve correction used as part of the gamma LUT auto correction function.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: 140 1: 120 2: 100 3: 80 4: 60 at time of shipment/upon RAM initialization: 2

<G-LUT-SZ>

T-15-385

	Use it to set the gamma LUT auto correction function (smoothing intervals). Use it to set the intervals of smoothing executed as part of the gamma LUT auto correction function.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: 30 1: 35 2: 40 3: 45 4: 50 at time of shipment/upon RAM initialization: 0

<TR-BKBND>

T-15-386

	Use it to set the black band used to prevent bending/slipping of the transfer cleaning blade. The machine is designed to deposit a black band to prevent bending/shipping of the transfer charging cleaning blade before cleaning the photosensitive drum immediately after patch detection or before application of the secondary transfer reverse bias.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: off (default) 1: on only if H/H 2: on at all times at time of shipment/upon RAM initialization: 0

<1TR-ATVC>

T-15-387

	Use it to enable/disable the primary transfer ATVC retry function for initial multiple rotation. Use it to enable/disable the primary transfer ATVC retry function for initial multiple rotation to suit the site of installation.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: off at all times (spare) 1: on only if H/H (default) 2: on normally at time of shipment/upon RAM initialization: 1

<FXLW-TMP>

T-15-388

	Use it to change the control temperature for the pressure roller.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: 170 deg C (default) 1: 160 deg C 2: 150 deg C at time of shipmen/upon RAM initialization: 0

<GLUTLV-Y>

T-15-389

for study by design dpt

<GLUTLV-M>

T-15-390

for study by design dpt

<GLUTLV-C>

T-15-391

	Use it to adjust the slope as part of the gamma LUT auto correction mechanism of the controller when improvement is needed to correct coarseness of images read of a cyan solid original.
Attention	The new setting will not be valid until the power switch has been turned off and then on.

Settings
0: 2.4
1: 2.0
2: 1.6
3: 1.2
4: 0
at time of shipment/upon RAM initialization: 0

<GLUTLV-K>

T-15-392

for study by design dpt

<GLUTMX-Y>

T-15-393

for study by design dpt

<GLUTMX-M>

T-15-394

for study by design dpt

<GLUTMX-C>

T-15-395

	Use it to adjust the maximum correction slope as part of the gamma LUT auto correction mechanism of the controller when improvement is needed to correct coarseness of images read of a cyan solid original.
Attention	The new setting will not be valid until the power switch has been turned off and then on.
Settings	0: 2.4 1: 2.2 2: 2.0 3: 1.8 4: 1.6 at time of shipment/upon RAM initialization: 2

<GLUTMX-K>

T-15-396

for study by design dpt

<GLUTOF-Y>

T-15-397

for study by design dpt

<GLUTOF-M>

T-15-398

for study by design dpt

<GLUTOF-C>

T-15-399

for study by design dpt

<GLUTOF-K>

T-15-400

for study by design dpt

<HDD-TMP>

T-15-401

	Use it to set a level of temperature to serve as a reference for detecting a low temperature error.
Caution	The new setting will not be valid until the power switch has been turned off and then on again.
Settings	0 to 30 deg C at time of shipment/upon RAM initialization: 2

<HDD-TIM>

T-15-402

Use it to set the time interval allowed before a low temperature error is identified

Caution	The new setting will not be valid until the power switch has been turned off and then on again.
Settings	0 to 200 min at time of shipment/upon RAM initialization: 10

<HDD-SW>

T-15-403

	Use it to enable/disable E code indication of a low temperature error
Caution	The new setting will not be valid until the power switch has been turned off and then on again
Settings	0: indicate 1: do not indicate at time of shipment/upon RAM initialization: 0

15.6.5.1.2 USER

<SIZE-DET>

T-15-404

	Use it to turn on/off the original size detection function.
setting	0: off (The scanner will not go on when the copyboard is opened/closed, thereby preventing the glare of the lamp. 1: ON [at time of shipment/after RAM initialization]

<DATE-DSP>

T-15-405

	Use it to change the date indication.
setting	0: YYMM/DD 1: DD/MM'YY 2: MM/DD/YY

<MB-CCV>

T-15-406

	Use it to limit the individuals holding control cards for mail boxes.
setting	0: do not limit[at time of shipment/after RAM initialization: 0] 1: limit

<TRY-STP>

T-15-407

	Use it to specify how output is made when the tray becomes full.
setting	0: normal mode (cut operation when the finisher tray becomes full) 1: cut based on height detection

<MF-LG-ST>

T-15-408

	Use it to set the extra-length key mode.
setting	0: normal 1: enable display of the Extra Length key in extension mode.

<CNT-DISP>

T-15-409

	Use it to enable/disable indication of the serial number of the machine in response to a press on the Counter Check key.
setting	0: enable
	1: disable

<OP-SZ-DT>

T-15-410

	Use it to enable/disable the original size detection mechanism in book mode. In copyboard mode, the user either has to enter an original size or have the machine automatically detect the size of the original.
Settings	0: require input of original size from control panel 1: detect original size automatically at time of shipment/upon RAM initialization: 0

<NW-SCAN>

T-15-411

	Use it to permit/not permit the network scan function.
setting	0: do not permit
	1: permit (invalid if UFR board or open I/F board is not connected)

<HDCR-DSP>

T-15-412

	Use it to enable/disable display and operation of HDD initialization for Additional Function.
setting	0: do not display and do not initialize 1: for '0', initialize once 2: at random (data), initialize once 3: at random (data), initialize 3 times

<JOB-INVL>

T-15-413

	Use it to set intervals for job interruption.
setting	0: standard (at time of interrupt mode, generate next job in succession) 1: start next job after delivery of last of interrupt job 2: start next job after delivery of last sheet of group of jobs

<LGSW-DSP>

T-15-414

	Use it to enable/disable display of 'log indication on/off setup' on the Additional Function screen.
setting	0: disable display of 'log display on/off setup' 1: enable 'log display on/off setup'

<PCL-COPY>

T-15-415

	Use it to set the PCL command COPIES (Meru/Pinatubo/Hood compatibility mode).
Settings	0: control page by page according to COPIES command setting on pages 1: Meru/Pinatubo/Hood compatible mode 2 to 65535: space at time of shipment/upon RAM initialization: 0

<PRJOB-CP>

T-15-416

	Use it to set the CCV count pulse for reception/report output.
setting	0: do not generate count pulse [at time of shipment/after RAM initialization] 1: generate count pulse

<SND-RATE>

T-15-417

	Use it to set a compression rate for SEND-RATE (i.e., when 'high' is selected under SEND for compression rate).
setting	0: rate of compression 1/16 [at time of shipment/after RAM initialization] 1: rate of compression 1/20 2: rate of compression 1/24 A higher rate of compression means a lower image level.

<CTM-S06>

T-15-418

Use it to remove the password from an export file (file transmission address).

range of settings	0:do not remove password from export file 1:remove password from export file. at time of shipment/upon RAM initialization: 0

<CTM-S07>

T-15-419

Use it to remove the source indication of the transmission password on the Edit screen (RUI address indication).

range of settings	0:do not remove source indication of transmission password on Edit screen 1:remove source indication of transmission password on Edit screen at time of shipment/upon RAM initialization: 0

<FXEX-CNT>

T-15-420

Use it to set the temperature control hysterisis width for the outside heating roller. The outside heating roller of the machine has a low heating capacity and tends to go on and off frequently; this mode is offered to prevent flickering.

Settings	0: hysterisis width = -/+1 deg C (225 deg C -/+1 deg C) 1: hysterisis width = -/+2 deg C (224 deg C -/+2 deg C) 2: hysterisis width = -/+3.5 deg C (222.5 deg C -/+3.5 deg C) 3: hysterisis width = -/+4.5 deg C (221.5 deg C -/+4.5 deg C) at time of shipment/upon RAM initialization: 0

15.6.5.1.3 CST

<U1 to 4NAME>

T-15-421

	Use it to enable/disable the indication of the paper name identified with a paper size group (U1 through U4).
Settings	0: indication on touch panel as U1, U2, U3, U4. 1: indicate name of paper set in service mode (CST-U1, U2, U3, U4) at time of shipment/upon RAM initialization: 0

<CST-U1 to U4>

T-15-422

	Use it to select the names of paper sizes to be used in paper size groups. By registering a special size for U1, U2, U3, or U4, you can cause the machine to treat the paper in question as special size paper.
Settings	24: Foolscap (CST-U2; default) 25: Australian Foolscap 26: Officio 27: Ecuadorian Officio 28: Bolivian Officio 29: Argentine Letter (U4; default) 30: Argentine Letter-R 31: Government Letter (U1: default) 32: Government Letter-R 34: Government Legal (U3: default) 35: Folio 36: Argentine Officio 37: Mexico Officio 38: Executive

15.6.5.1.4 ACC

<STPL-LMT>

T-15-423

	Use it to set a limit to the number of sheets that may be saddle-bound.
setting	0: 5 (w/o white band) 1: 10 (w/o while band) 2: 10 (w/ white band) 3: 15 (w/ white band) [at time of shipment/after RAM initialization]

<SC-TYPE>

T-15-424

	Use it to change the type of machine (self copy/coin vendor machine). This mode is effective only when the machine soft ID is "Lawson." Use it to switch between a Lawson model and a self copy model.
Settings	0: Lawon model 1: general self copy model at time of shipment/upon RAM initialization: 0

<CC-SPSW>

T-15-425

	Use it to select the control card (CC IV/CC V) I/F support level.

setting	0: do not support [at time of shipment/after RAM initialization] 1: support (priority on speed) 2: support (priority on upper limit) - If it is set to '1', the machine may not be ale to make an accurate stop based on an upper limit, as it puts priority on the maintenance of engine performance. - If it is set to '2', the machine will be able to use proper control based on an upper limit, but may suffer from a drop in engine performance depending on which source of paper it uses.

15.6.5.1.5 INT-FACE

<AP-OPT >

T-15-426

	Use it to enable/disable printing from PrintMe (application bundled with the PS print server unit).
setting	0: permit printing by specific account 1: permit printing by any account [at time of shipment/after RAM initialization] 2: do not permit printing (permitting only for specific group ID)

<AP-ACCNT>

T-15-427

	Use it to set a group ID for a print job (CPCA) from PintMe (application bundled with the PS print server unit).
Range of settings	0 to 9999999 [at time of shipment/after RAM initialization: 0]

<AP-CODE>

0001-0587

T-15-428

	Use it to set a path code for a print job (CPCA) from PrintMe (application bundled with the PS print server unit).
Range of settings	0 to 9999999 [at time of shipment/after RAM initialization: 0]

15.6.5.2 BOARD

15.6.5.2.1 <MENU-1 to 4>

Indication of Levels 1 Through 4 for the Printer Setup Menu

T-15-429

	0: do no indicate [at time of shipment/after RAM initialization]
setting	1: indicate

15.7 TEST （Test Print Mode）

15.7.1 COPIER

15.7.1.1 PG

15.7.1.1.1 <TYPE>

T-15-430

	Use it to generate test prints. Enter the appropriate type number (test print), and press the Start key. (Be sure to return the setting to '0' after garneting the test print.)
Settings	0: image from CCD (normal print) 1 to 3: for R&D 4: 16-gradation 5: full page halftone 6: grid 7 to 9: for R&D 10: MCYBk horizontal stripe 11: for R&D 12: YMCBk 64 gradation 13: for R&D 14: full color 16-gradation 15 to 200: for R&D at time of shipment/upon RAM initialization: 0

15.7.1.1.2 <TXPH>

T-15-431

	Use it to set image mode when generating test prints.

Settings	0: T-Mic (w/o end correction) 1: SC1 (w/o end correction) 2: SC2 (w/o end correction) 3: T-Mic (w/ end correction only if Bk) 4: SC2 (w/ end correction if Bk) 5: T-Mic (w/ gamma LUT auto correction) 6: SCI (w/ gamma LUT auto correction) 7: SC2 (w/gamma LUT auto correction) 8: T-Mic (w/ end correction if Bk; w/ gamma LUT auto correction) 9: SC2 (w/ end correction if Bk; w/ gamma LUT auto correction) The setting herein is valid only for test prints. at time of shipment/upon RAM initialization: 0

15.7.1.1.3 <THRU>

T-15-432

	Use it to switch between image correction tables for text print output.
Setting	0: on (use) 1: off (do not use)

15.7.1.1.4 <DENS-Y>

T-15-433

	Use it to adjust the density of individual colors of a test print (TYPE=5).
Settings	0 to 255: a higher setting will make the image darker. at time of shipment/upon RAM initialization: 128

15.7.1.1.5 <DENS-M>

T-15-434

	Use it to adjust the density of individual colors of a test print (TYPE=5).
Settings	0 to 255: a higher setting will make the image darker. at time of shipment/upon RAM initialization: 128

15.7.1.1.6 <DENS-C>

T-15-435

	Use it to adjust the density of individual colors of a test print (TYPE=5).
Settings	0 to 255: a higher density will make the image darker. at time of shipment/upon RAM initialization: 128

15.7.1.1.7 <DENS-K>

T-15-436

	Use it to adjust the density of individual colors of a test print (TYPE=5).
Settings	0 to 255: a higher setting will make the image darker. at time of shipment/upon RAM initialization: 128

15.7.1.1.8 <COLOR-Y>

T-15-437

	Use it to set the output of individual colors for individual TYPEs. For example, to generate M in mono, set '1' to 'COLOR-M' and '0' to others.
Settings	0: do not generate 1: generate at time of shipment/upon RAM initialization: 1

15.7.1.1.9 <COLOR-M>

T-15-438

	Use it to set the output of individual colors for individual TYPEs. For example, to generate M in mono, set '1 to 'COLOR-M'' and '0 to others.
Settings	0: do not generate 1: generate at time of shipment/upon RAM initialization: 1

15.7.1.1.10 <COLOR-C>

T-15-439

	Use it to set the output of individual colors for individual TYPEs. For example, to generate M in mono, set '1' to 'COLOR-M' and '0' to others.
Settings	0: do not generate 1: generate at time of shipment/upon RAM initialization: 1

15.7.1.1.11 <COLOR-K>

T-15-440

	Use it set the output of individual colors for individual TYPEs. for example, to generate M in mono, set '1' to 'COLOR-M', and '0' to others.
Settings	0: do not generate 1: generate at time of shipment/upon RAM initialization: 1

15.7.1.1.12 <F/M-SW>

T-15-441

	Use it to switch between full color and mono color for PG output.
Setting	0: full color output 1: mono color output

15.7.1.1.13 <PG-PICK>

T-15-442

	Use it to select a source of paper for text print output.
Setting	1: cassette 1 2: cassette 2 3: cassette 3 4: cassette 4 5: side deck 6: manual feeder 7 and 8: not used

15.7.1.1.14 <2-SIDE>

T-15-443

	Use it to set mode for text printing.
Setting	0: single-sided [at time of shipment/after RAM initialization] 1: double-sided

15.7.1.1.15 <PG-QTY>

T-15-444

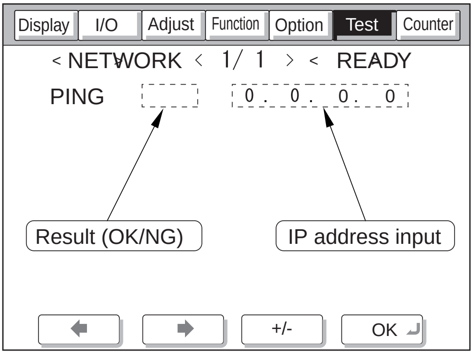
	Use it to set a copy count for text printing.
Setting	1 to 999 [at time of shipment/after RAM initialization: 1]

15.7.1.2 NETWORK

15.7.1.2.1 <PING>

T-15-445

	Use it to check the connection of the machine to a network (only if TCP/IP).
Caution	Use it when checking the connection to the network at time of installation if a fault occurs in the connection to the network.


Display
I/O
Adjust
Function
Option
Test
Counter
< NETWORK < 1/ 1 > < READY
PING
0 . 0 . 0 . 0
Result (OK/NG)
IP address input
+/-
OK

F-15-25

T-15-446

Method of operation	1) Turn off the main power switch. 2) Connect the network cable to the machine and turn on the main power switch. 3) Inform the user's system administrator that the installation work for the machine is over, and ask him/her to make necessary network settings. 4) Advise the system administrator that you will be checking the network connection, and obtain the remote host address (IP address of a PC terminal on the user's network) for PING. 5) Make the following selections in service mode: COPIER>TEST>NETWORK>PING. Then, using the keypad on the control panel, enter the IP address you obtained in step 4), and press the OK key and then the Start key. - The machine will indicate 'OK' if the connection to the network is correct. (end of work) - If the machine indicates 'NG', check the connection of the network cable; if it is normal, go to step 6). If a fault has been found in the connection of the network cable, correct it, and go back to step 5). 6) Make the following selections in service mode: COPIER>TEST>NETWORK>PING. Then, enter the loopback address* (127.0.0.1), and press the OK key and then the Start key. - If the machine indicates 'NG', suspect a fault in the TCP/IP settings of the machine; go back to step 3), and check the settings. - If the machine indicates 'OK', the TCP/IP settings of the machine are likely to be correct. Suspect, on the other hand, a fault in the connection of the network interface board (NIC) or the board itself. Go on to step 7). * A loopback address will return before it reaches the NIC, offering a means to check the TCP/IP settings of the machine itself. 7) Make the following selections in service mode: COPIER>TEST>NETWORK>PING. Then, enter the local host address (IP address of the machine), and press the OK key. - If the machine indicates 'NG', suspect a fault in the connection of the NIC or the NIC itself. Check its connection, or replace it as necessary.

- If the machine indicates 'OK', the network settings of the machine and the NIC are likely to be correct. Suspect a fault in the user's network environment; ask the system administrator for corrective action.

15.8 COUNTER （Counter Mode）

15.8.1 COPIER

15.8.1.1 TOTAL

15.8.1.1.1 <Overview>

Total Counter

15.8.1.1.2 <SERVICE1>

Total Counter 1 for Service Work
It increases its count when paper is delivered outside the printer unit.
(It increases its count regardless of the size of paper, large or small.)
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.3 <SERVICE2>

Total Counter 2 for Service Work
It increases its count when paper is delivered outside the printer unit.
(It increases its count by 2 if the paper is large size and by 1 if the paper is small size.)
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.4 <COPY>

Total Copy Counter
It increases its count when copying operation has been executed and paper is delivered outside the printer.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.5 <PDL-PRT>

PDL Print Counter
It increases its count when paper is delivered outside the machine or stacked for duplexing in keeping with the charge counter when in PDL print mode.
It does not increase its count in the case of blank paper. It increases its count by 1 for large and small sheets alike.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.6 <FAX-PRT>

Fax Reception Print Counter
It increases its count when paper is delivered outside the machine or stacked for duplexing to suit the charge counter in fax reception mode.
It does not increase its count in the case of blank paper. It increases its count by 1 for large and small sheets alike. Its count may be reset.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.7 <RMT-PRT>

Remote Print Counter
It increases its count when paper is delivered outside the machine or stacked for duplexing in keeping with the charge counter in remote print mode.
It does not increase its count in the case of blank paper. It increases its count by 1 for large and small sheets alike. Its count may be reset.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.8 <BOX-PRT>

Box Print Counter
It increases its count when paper is delivered outside the machine or stacked for duplexing in keeping with the charge counter in box print mode.
It does not increase its count in the case of blank paper. It increases its count by 1 for large and small sheets alike. Its count may be reset.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.9 <RPT-PRT>

Report Print Counter
It increases its count when paper is delivered outside the machine or stacked for duplexing in keeping with the charge counter in report print mode.
It does not increase its count in the case of blank paper. It increases its count by 1 for large and small sheets alike. Its count may be reset.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.10 <2-SIDE>

Double-Sided Copy/Print Counter
It increases its count when paper is delivered outside the machine or stacked for duplexing in keeping with the charge counter, indicating the number of double-sided copies/prints.
It does not increase its count in the case of blank paper. It increases its count by 1 for large and small sheets alike. Its count may be reset.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.1.11 <SCAN>

Scan Counter
It increases its count at the end of reading operation, indicating the number of scans.
It increases its count by 1 for large and small sheets alike. It may be initialized.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.2 PICK-UP

15.8.1.2.1 <Outline>

Pickup-Related Counters

15.8.1.2.2 <C1>

Cassette 1 Pickup Total Counter
It indicates the number of sheets picked up from the cassette 1.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.2.3 <C2>

Cassette 2 Pickup Total Counter
It indicates the number of sheets picked up from the cassette 2.
When the count exceeds '99999999' it returns to '00000000'.

15.8.1.2.4 <C3>

Cassette 3 Pickup Total Counter
It indicates the number of sheets picked up from the cassette 3 (upper cassette of the cassette pedestal).
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.2.5 <C4>

Cassette 4 Pickup Total Counter
It indicates the number of sheets picked up from the cassette 4 (lower cassette of the cassette pedestal).
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.2.6 <MF>

Manual Feed Pickup Total Counter
It indicates the number of sheets picked up from the manual feed pickup unit.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.2.7 <DK>

Deck Pickup Total Counter

It indicates the number of sheets picked up from the deck pickup unit.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.2.8 <2-SIDE>

Duplex Pickup Total Counter
It indicates the number of sheets used for duplexing.
When the count exceeds '99999999', it returns to '00000000'.

15.8.1.3 FEEDER

15.8.1.3.1 <Overview>

DADF-Related Counters

15.8.1.3.2 <FEED>

total counter indicating the number of originals picked up by the ADF

15.8.1.4 JAM

15.8.1.4.1 <Overview>

Jam-Related Counters

15.8.1.4.2 <TOTAL>

copier total jam counter

15.8.1.4.3 <FEEDER>

feeder total jam counter

15.8.1.4.4 <SORTER>

finisher total jam counter

15.8.1.4.5 <2-SIDE>

duplex unit jam counter

15.8.1.4.6 <MF>

manual feed pickup jam counter

15.8.1.4.7 <C1>

cassette 1 jam counter

15.8.1.4.8 <C2>

cassette 2 jam counter

15.8.1.4.9 <C3>

cassette 3 jam counter

15.8.1.4.10 <C4>

cassette 4 jam counter

15.8.1.4.11 <DK>

side paper deck jam counter

15.8.1.5 MISC

15.8.1.5.1 <Overview>

Other Counters

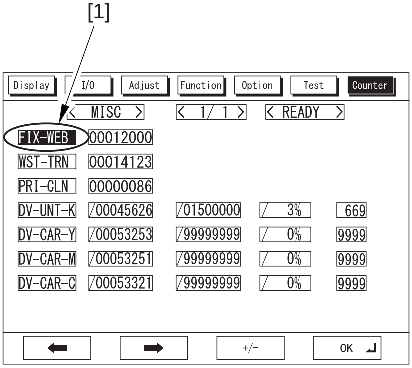
15.8.1.5.2 <FIX-WEB>

T-15-447

	fixing cleaning web counter (count retained by DC controller PCB)
Operation	If you have replaced the fixing web, reset the counter reading. If you have replaced the DC controller PCB, enter the reading indicated before the replacement. The count in this mode begins a count, after a web-less preliminary announcement display is displayed.

Memo: Entering the Pre-Replacement Reading

Highlight the counter reading [1], and enter the reading indicated before the replacement.



< MISC > < 1/ 1 > < READY >

FIX-WEB	00012000			
WST-TRN	00014123			
PRI-CLN	00000086			
DV-UNT-K	/00045626	/01500000	/ 3%	669
DV-CAR-Y	/00053253	/99999999	/ 0%	9999
DV-CAR-M	/00053251	/99999999	/ 0%	9999
DV-CAR-C	/00053321	/99999999	/ 0%	9999

F-15-26

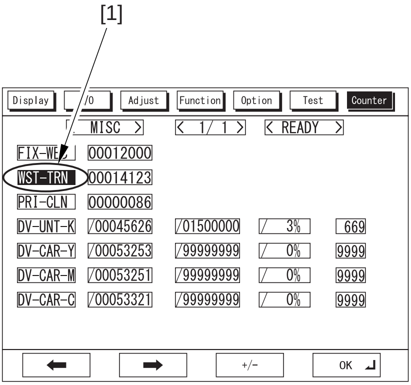
15.8.1.5.3 <WST-TNR >

T-15-448

	waste toner counter (count retained by DC controller PCB)
Operation	If you have disposed of waste toner, reset the counter reading. If you have replaced the DC controller, enter the reading indicated before the replacement.
Remarks	The counts are made as follows: Duty: 10% or less B/W if small, counted as 1 if large, counted as 2 4C if small, counted as 4 if large, counted as 8 Duty:10% or more B/W if small, counted as 3 if large, counted as 6 4C if small, counted as 12 if large, counted as 24 estimates at a color ratio of 10% and image duty of 5%.

Memo: Entering the Pre-Replacement Reading

Highlight the counter reading [1], and enter the reading indicated before the replacement.



FIX-WE	00012000			
WST-TRN	00014123			
PRI-CLN	00000086			
DV-UNT-K	/00045626	/01500000	/ 3%	669
DV-CAR-Y	/00053253	/99999999	/ 0%	9999
DV-CAR-M	/00053251	/99999999	/ 0%	9999
DV-CAR-C	/00053321	/99999999	/ 0%	9999

F-15-27

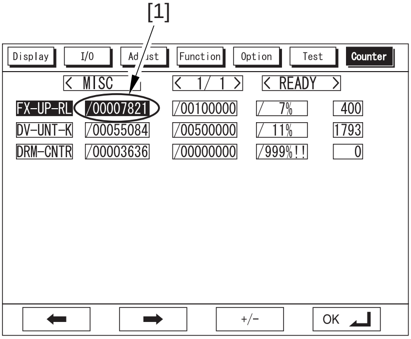
15.8.1.5.4 <PRI-CLN >

T-15-449

	primary charging wire auto cleaning counter (count retained by DC controller PCB)
Operation	If you have replaced the primary charging wire, reset the counter reading. If you have replaced the DC controller PCB, enter the reading indicated before the replacement.

Memo: Entering the Pre-Replacement Reading

Highlight the counter reading [1], and enter the reading indicated before the replacement.



```
< MISC >        < 1/ 1 >     < READY >
FX-UP-RL  /00007821  /00100000  /  7%     400
DV-UNT-K  /00055084  /00500000  / 11%    1793
DRM-CNTR  /00003636  /00000000  /999%!!     0
```

F-15-28

15.8.1.5.5 <DV-UNT-K>

T-15-450

	It indicates the number of sheets that have moved past through the developing unit.
Method of operation	- If you have replaced the developing unit (Bk), initialize the reading. - If you have replaced the DC controller PCB, enter the reading recorded before the replacement.
Caution	Do not reset the reading or enter a new reading unless if you have done the foregoing. Otherwise, the machine may have to operate on incorrect image density, producing foggy output or damaging the drum (by carrier particles), requiring you to replace the developing unit (Bk), and initialize the reading.
Reference	The machine's ATR control consists in the correction of the toner supply amount based on the target density and the patch image density it measures at specific times. It corrects the target density for individual colors, and it makes correction for Bk based on the cumulative number of images made (i.e., the reading discussed herein).

15.8.1.5.6 <DV-CAR-Y>

T-15-451

	toner life Y
Operation	- if you have replaced the developing assembly/toner (Y), reset the reading of the counter. - if you have replaced the DC controller PCB, enter the reading indicated before the replacement.
Estimated life	500,000 prints

15.8.1.5.7 <DV-CAR-M>

T-15-452

	toner life M
Operation	- if you have replaced the developing assembly/toner (M), reset the reading of the counter. - if you have replaced the DC control PCB, enter the reading indicated before the replacement.
Estimated life	500,000 prints

15.8.1.5.8 <DV-CAR-C>

T-15-453

	toner life C
Operation	- if you have replaced the developing assembly/toner (C), reset the reading of the counter. - if you have replaced the DC controller PCB, enter the reading indicated before the replacement.
Estimated life	500,000 prints

15.8.1.5.9 <DRM-PHAS>

T-15-454

	Use it when shifting the photosensitive drum phase.
	When the photosensitive drum is used without changing the home position in relation to the drum axis, uneven density at drum intervals or lines can occur in output images. To limit the symptom, shift the phase of the photosensitive drum by 90 deg every specific number of prints. The machine does not shift the phase on its own, and requires the work of the service person. The machine indicates a message to prompt the work on the User and Service Mode screens. Use this mode item to obtain an idea of how much the photosensitive drum has been used so that the work cycle may be predicted.
Remarks	- When the service mode item used in shifting the drum phase is executed (i.e., COPIER>FUNCTION>MISC-P>DR-P-ADJ), the counter reading will automatically be reset. - to change the timing at which the message is indicated (COPIER>FUNCTION>MISC-P>DR-P-ADJ), change the denominator of the setting. By default, the denominator is 200,000 images (Japan) or 100,000 images (outside Japan).

15.8.1.6 PRDC-1

15.8.1.6.1 Overview

The counter readings used in service mode are grouped into the following 5 types:

Type 1: black-and-white S size: count by 1 full color S size: count by 4
L size: count by 2 L size: count by 8
Type 2: black-and-white S size: count by 1 full color S size: count by 3
L size: count by 2 L size: count by 6
Type 3: black-and-white S size: count by 1 full color S size: count by 1
L size: count by 2 L size: count by 2
Type 4: black-and-white/ full color count by 1
Type 5: black-and-white no count full color count by 1

All the values of the items under COPIER>COUNTER>PRDC-1 are retained by the main controller PCB.

15.8.1.6.2 <PRM-WIRE>

for the primary charging wire, indicates the number of times high voltage has gone on.

Estimated life: 500,000 image
count type: type 1

15.8.1.6.3 <PRM-GRID>

for the grid plate, indicates the number of times high voltage has gone on.

Estimated life: 500,000 image
count type: type 1

15.8.1.6.4 <PO-WIRE>

for the pre-transfer charging wire, indicates the number of times high voltage has gone on.

Estimated life: 500,000 image
count type: type 1

15.8.1.6.5 <PRM-CLN>

for the primary charging wire cleaner, indicates the number of times it has been replaced.

Estimated life: 500,000 image
count type: type 1

15.8.1.6.6 <PO-CLN>

for the pre-transfer charging wire cleaner, indicates the number of times it has been replaced.

Estimated life: 500,000 image
count type: type 1

15.8.1.6.7 <PRM-CLN2>

for the primary charging wire cleaner 2, indicates the number of times it has been replaced.

Estimated life: 500,000 image

count type: type 1

15.8.1.6.8 <PO-CLN2>

for the pre-transfer charging wire cleaner2, indicates the number of times it has been replaced.

Estimated life: 500,000 image

count type: type 1

15.8.1.6.9 <PO-UNIT>

for the post charging assembly, indicates the number of times it has gone on.

Estimated life: 1,000,000 image

count type: type 1

15.8.1.6.10 <PRM-UNIT>

for the primary charging assembly, indicates the number of times it has gone on.

Estimated life: 1,000,000 image

count type: type 1

15.8.1.6.11 <FIX-TH1>

for the fixing assembly main thermistor (TH1), indicates the number of times it has gone on in terms of the number of sheets involved.

Estimated life: 500,000 image

count type: type 3

15.8.1.6.12 <FX-TSW>

for the fixing assembly thermal switch (TP1), indicates the number of times it has gone on in terms of the number of sheets involved.

Estimated life: 1,000,000 image

count type: type 3

15.8.1.6.13 <FX-LW-TH>

for the contact thermistor, indicates the number of sheets that have passed.
Estimated life: 500,000 image
counter type: type 3

15.8.1.6.14 <FX-EX-TH>

for the external heating roller thermistor, indicates the number of sheets that have passed.
Estimated life: 500,000 image
counter type: type 3

15.8.1.6.15 <FX-LW-TS>

for the contact thermal switch, indicates the number of sheets that have passed.
Estimated life: 1,000,000 image
counter type: type 3

15.8.1.6.16 <FX-EX-TS>

for the external heating roller thermal switch, indicates the number of sheets that have passed.
Estimated life: 1,000,000 image
count type: type 3

15.8.1.6.17 <OZ-FIL2>

for the ozone filter (FM2) fan, indicates the number of times it has gone on.
Estimated life: 250,000 image
count type: type 1

15.8.1.6.18 <TN-FIL2>

for the toner filter (FM2), indicates the number of times it has gone on.

Estimated life: 250,000 image
count type: type 1

15.8.1.7 DRBL-1

15.8.1.7.1 Overview

The readers of the counters used in service mode are grouped into the following 5 types:
Type 1: black-and-while S size: count by 1 full color S size: count by 4
L size: count by 2 L size: count by 8
Type 2: black-and-while S size: count by 1 full color S size: count by 3
L size: count by 2 L size: count by 6
Type 3: black-and-while S size: count by 1 full color S size: count by 1
L size: count by 2 L size: count by 2
Type 4: black-and-while/full color count by 1
Type 5: black-and-while not counted full color count by 1

The following is a list of service mode items whose data is retained by the DC controller PCB or the main controller PCB.

Main controller PCB
TRD-CLN,TR-BLT,TR-ROLL,2TR-TOLL,TR-STC-H,1TR-STC,ITB-SUPS,2TR-INRL,CLN-BLD,CL-SUPS,CL-SCRP,C3-PU-RL,C3-SP-RL,C3-FD-RL,C4-PU-RL,C4-SP-RL,C4-FD-RL,LD-PU-RL,LD-SP-RL,LD-FD-RL,RD-PU-RL,RD-SP-RL,RD-FD-RL,M-PU-RL,M-SP-RL,FX-IN-BS,FX-WEB,FX-EX-RL,FX-RW-BS,FX-EX-BS,DLV-UCLW,DLV-LCLW,OZ-FIL5,TN-FIL2,TN-FIL5,FX-SPACE,ITB-SCRP

DC controller PCB
DV-UNT-C,DV-UNT-Y,DV-UNT-M,FX-UP-RL,FX-LW-RL

If you are replacing the main controller PCB or the DC controller PCB,be sure to exeucte the following service mode item and keep the output stored away: COPIER>FUNCTION>MISC>P-PRINT.

15.8.1.7.2 <LSR-DRV>

not used

15.8.1.7.3 <LSR-MTR>

not used

15.8.1.7.4 <SCN-MTR>

not used

15.8.1.7.5 <TRD-CLN>

indicates the number of times the transfer drum cleaner has gone on in terms of the number of sheets involved.
Estimated life: 195000 image
count type: type 3

15.8.1.7.6 <TR-BLT>

for the intermediate transfer belt unit, indicates the number of sheets that have passed.
Estimated life: 300000 image
count type: type 1

15.8.1.7.7 <TR-ROLL>

for the secondary transfer outside roller, indicates the number of sheets that have passed.
Estimated life: 195000 image
count type: type 1

15.8.1.7.8 <2TR-ROLL>

for the secondary transfer outsider roller, indicates the number of times high voltage has gone on in terms of the number of sheets involved.
Estimated life: 195000 image

count type: type 3

15.8.1.7.9 <TR-STC-H>

indicates the number of times the secondary transfer static eliminator has gone on in terms of the number of sheets involved.

Estimated life: 150000 prints

count type: type 3

15.8.1.7.10 <1TR-STC>

indicates the number of times the primary transfer static eliminator has gone on in terms of the number of sheets involved.

Estimated life: 300000 image

count type: type 1

15.8.1.7.11 <ITB-SUPS>

for the ITB cleaner scoop-up sheet, indicates the number of sheets that have passed.

Estimated life: 150000 prints

count type: type 3

15.8.1.7.12 <2TR-INRL>

for the secondary transfer inside roller, indicates the number of sheets that have passed.

Estimated life: 300000 prints

count type: type 3

15.8.1.7.13 <PT-DRM>

indicates the number of times the photosensitive drum has rotated in terms of the number of sheets involved.

Estimated life: 3900000 image

count type: type 1

15.8.1.7.14 <DRM-MTR>

not used

15.8.1.7.15 <MAIN-MTR>

not used

15.8.1.7.16 <CLN-BLD>

for the cleaner scoop-up sheet, indicates the number of times it has been used in terms of the number of sheets involved.
Estimated life: 195000 image
count type: type 1

15.8.1.7.17 <CL-SUPS>

for the cleaner scoop-up sheet, indicates the number of times it has been used in terms of the number of sheets involved.
Estimated life: 390000 image
count type: type 1

15.8.1.7.18 <DV-UNT-C>

indicates the number of times the C developing assembly has rotated in terms of the number of sheets involved.
Estimated life: 500000 prints
count type: type 5

15.8.1.7.19 <DVG-CYL>

indicates the number of times the developing cylinder has rotated in terms of the number of sheets involved.
Estimated life: 1000000 prints
count type: type 3

15.8.1.7.20 <DVG-ROLL>

indicates the number of tines the developing assembly roll has rotated in terms of the number of sheets involved.

Estimated life: 1000000 prints
count type: type 3

15.8.1.7.21 <DV-UNT-Y>

indicates the number of times the Y developing assembly has rotated in terms of the number of sheets involved.

Estimated life: 500000 prints
count type: type 5

15.8.1.7.22 <DV-UNT-M>

indicates the number of times the M developing assembly has rotated in terms of the number of sheets involved.

Estimated life: 500000 prints
count type: type 5

15.8.1.7.23 <CL-SCRP>

for the edge scraper, indicates the number of sheets that have passed.

Estimated life: 500000 image
Count type: type 1

15.8.1.7.24 <C3-PU-RL>

for the cassette 3 pickup roller, indicates the number of sheets that have passed.

Estimated life: 250000 prints
count type: type 3

15.8.1.7.25 <C3-SP-RL>

for the cassette 3 separation roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 3

15.8.1.7.26 <C3-FD-RL>

for the cassette 3 feed roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 3

15.8.1.7.27 <C4-PU-RL>

for the cassette 4 pickup roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 3

15.8.1.7.28 <C4-SP-RL>

for the cassette 4 separation roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 3

15.8.1.7.29 <C4-FD-RL>

of the cassette 4 feed roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 3

15.8.1.7.30 <LD-PU-RL>

for the left front deck pickup roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints

count type: type 4

15.8.1.7.31 <LD-SP-RL>

for the left front deck separation roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 4

15.8.1.7.32 <LD-FD-RL>

for the left front deck feed roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 4

15.8.1.7.33 <RD-PU-RL>

for the right front deck pickup roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 4

15.8.1.7.34 <RD-SP-RL>

for the right front deck separation roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 4

15.8.1.7.35 <RD-FD-RL>

for the right front deck feed roller, indicates the number of sheets that have passed.
Estimated life: 250000 prints
count type: type 4

15.8.1.7.36 <M-PU-RL>

for the manual feed pickup roller, indicates the number of sheets that have passed.

Estimated life: 120000 prints

count type: type 3

15.8.1.7.37 <M-SP-RL>

for the manual feed tray separation roller, indicates the number of sheets that have passed.

Estimated life: 120000 prints

count type; type 3

15.8.1.7.38 <FX-UP-RL>

Fixing Upper Roller

Number of sheets fed

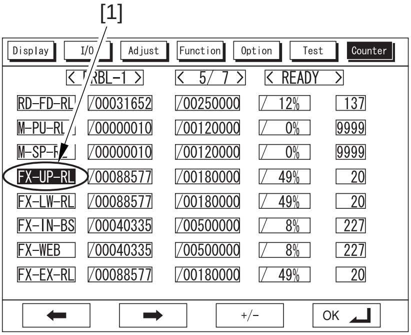
Estimated life: 180,000 (black-and-white mono; 100%)

Count type: type 2

Be sure to reset the reading if you have replaced the fixing roller. If you have replaced the DC controller PCB, be sure to enter the reading recorded before the replacement.

MEMO: Entering the Initianl Reading

Highlight the counter reading [1], and type in the initial reading (from before the replacement work).



RD-FD-RL	/00031652	/00250000	/ 12%	137
M-PU-RL	/00000010	/00120000	/ 0%	9999
M-SP-RL	/00000010	/00120000	/ 0%	9999
FX-UP-RL	/00088577	/00180000	/ 49%	20
FX-LW-RL	/00088577	/00180000	/ 49%	20
FX-IN-BS	/00040335	/00500000	/ 8%	227
FX-WEB	/00040335	/00500000	/ 8%	227
FX-EX-RL	/00088577	/00180000	/ 49%	20

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The reading '18,000' (denominator) for [FX-UP-RL] may be changed, but a change will not affect the stored data, i.e., it will return to '180,000' when a different page is brought up or the power is turned off and then back on. To change the stored data (denominator), change the setting in the following service mode item: COPIER>OPERATION>BODY>FXWRNLVL.

The reading may be changed to any of the following three: 180,000/150,000/120,000.

15.8.1.7.39 <FX-LW-RL>

for the fix lower roller, indicates the number of sheets that have passed.
Estimated life: 180000 prints
count type: type 2

15.8.1.7.40 <FX-IN-BS>

for the fixing heat insulating bush, indicates the number of sheets that have passed.
Estimated life: 500000 prints
count type: type 3

15.8.1.7.41 <FX-WEB>

for the fixing web, indicates the number of times it has been taken up.
Estimated life: 500000 prints
count type: type 3
Clear in COPIER>COUNTER>MISC>FIX-WEB and COPIER>COUNTER>DRBL-1>FX-WEB, when webs are exchanged

15.8.1.7.42 <FX-EX-RL>

for the external heating roller, indicates the number of sheets that have passed.
Estimated life: 180000 prints
count type: type 2

15.8.1.7.43 <FX-LW-BS>

for the pressure roller heat insulating bush, indicates the number of sheets that have passed.
Estimated life: 500000 prints
count type: type 3

15.8.1.7.44 <FX-EX-BS>

for the eternal heating roller bush, indicates the number of sheets that have passed.
Estimated life: 500000 prints
count type: type 3

15.8.1.7.45 <DLV-UCLW>

for the delivery upper separation claw, indicates the number of sheets that have passed.
Estimated life: 500000 prints
count type: type 3

15.8.1.7.46 <DLV-LCLW>

for the delivery lower separation claw, indicates the number of sheets that have passed.
Estimated life: 500000 prints
count type: type 3

15.8.1.7.47 <OZ-FIL5>

for the fixing heat discharge fan, indicates the number of sheets that have passed.
Estimated life: 1000000 image
count type: type 1

15.8.1.7.48 <TN-FIL2>

toner filter2; number of sheets fed
Estimated life: 1,000,000 image
count type: TYPE 1

15.8.1.7.49 <TN-FIL5>

not used

15.8.1.7.50 <FX-SPACE>

not used

15.8.1.7.51 <ITB-SCRP>

ITB scraper; number of sheets fed
Estimated life: 600000 image
count type: type 1

15.8.1.8 DRBL-2

15.8.1.8.1 <DF-PU-RL>

for the ADF pickup roller, indicates the number of sheets it has picked up.
Estimated life: 80,000 prints
for both single-sided and double-sided modes, for each single original (not the sides), the count is increased by 1; large and small sizes are not distinguished

15.8.1.8.2 <DF-SP-PD>

for the ADF separation pad, indicates the number of sheets that have passed.
Estimated life: 80,000 prints
for both single-sided and double-sided modes, for each single original (not the sides), the count is increased by 1: large and small sizes are not distinguished

15.8.1.8.3 <DF-FD-RL>

for the DF separation plate, indicates the number of sheets that have been separated.
Estimated life: 80,000 prints
for single-sided mode, the count is increased by 1 for each single original; for double-sided

mode, the count is increased by 3 (as feeding takes place 3 times for face, back, and idle); large and small sizes are not distinguished

15.8.1.8.4 <LNT-TAPE>

not used

15.8.1.8.5 <DF-SP-RL>

number of sheets passing the ADF feed (separation) roller
Estimated life: 80,000 prints
for both single-sided and double-sided modes, the count is increased by every single original (not the sides).

15.8.1.8.6 <LNT-TAP1>

for the dust collecting tape A, indicates the number of sheets that have passed.
Estimated life: 80,000 prints
for both single-sided and double-sided modes, the count is increased by 1 for every single original (not the sides); large and small sizes are not distinguished

15.8.1.8.7 <LNT-TAP2>

for the dust collecting tape B, indicates the number of sheets that have passed.
Estimated life: 80,000 prints
for both single-sided and double-sided modes, the count is increased by 1 for every single original (not the sides); large and small sizes are not distinguished

15.8.1.8.8 <LNT-TAP3>

for the dust-collecting tape C, indicates the number of sheets that have passed.
Estimated life: 80,000 prints
for both single-sided and double-sided modes, the count is increased by every signal original (not the sides); large and small sizes are not distinguished

15.8.1.8.9 <LNT-TAP4>

for the dust-collecting tape D, indicates the number of sheets that have passed.
Estimated life: 80,000 prints
for both single-sided and double-sided modes, the count is increased by for every single original (not the side); large and small sizes are not distinguished

15.8.1.8.10 <LNT-TAP5>

for the dust-collecting tape E, indicates the number of sheets that have passed.
Estimated life: 80,000 prints
for both single-sided and double-sided modes, the count is increased by 1 for every signal original (not the side); large and small size are not distinguished

15.8.1.8.11 <PD-PU-RL>

for the paper deck pickup roller, indicates the number of sheets that have passed.
Estimated life: 250,000 prints

15.8.1.8.12 <PD-SP-RL>

for the paper deck separation roller, indicates the number of sets that have passed.
Estimated life: 250,000 prints

15.8.1.8.13 <PD-FD-RL>

for the paper deck feed roller, indicates the number of sheets that have passed.
Estimated life: 250,000 prints

15.8.1.8.14 <SORT>

for the sort path, indicates the number of sheets that have passed.
(count retained by DC controller PCB)

15.8.1.8.15 <FIN-STPR>

for the stacker assembly, indicates the number of times the stapler has gone on.
(count retained by the DC controller PCB)

15.8.1.8.16 <SADDLE>

for the saddle path, indicates the number of sheets that have passed.
(count retained by DC controller PCB)

15.8.1.8.17 <SDL-STPL>

for the saddle assembly, indicates the number of times the stapler has gone on.
(count retained by DC controller PCB)

15.8.1.8.18 <PUNCH>

for the puncher, indicates the number of times it has gone on.
(count retained by DC controller PCB)

15.8.1.8.19 <FN-BFFRL>

for the buffer roller, indicates the number of times it has gone on.
(count retained by DC controller PCB)
for every single sheet that passes the buffer roller, the roller goes on once

Chapter 16

Upgrading

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16.1 Outline

16.1.1 Outline of the Version Upgrade

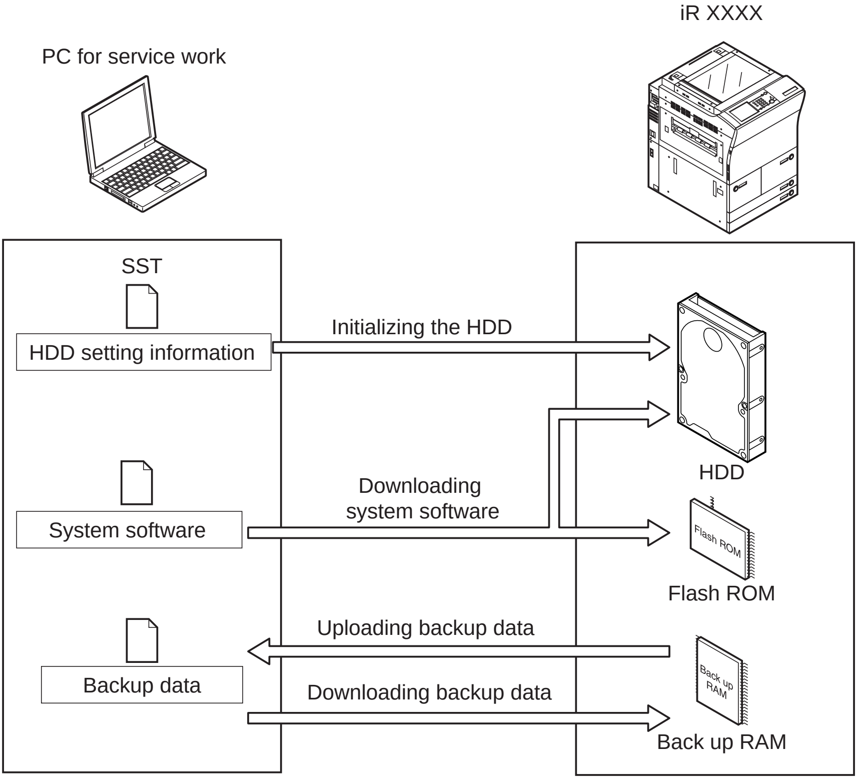
The version upgrade of this machine and the accessories can be done by downloading from a personal computer (PC) in which the service support tool (SST) is installed or by replacing DIMM-ROM. The table below shows a list of firmware and the associated way of upgrading.

T-16-1

	Firmware	Way of Version Upgrade		Notes
		SST	ROM-DIMM replacement	
Main Body	System (system software)	Yes	No	
	Language (language module)	Yes	No	
	RUI (remote UI)	Yes	No	
	Boot (boot program)	Yes	Yes	
	DCON (DC controller)	Yes	No	
	RCON (reader controller)	Yes	No	It also controls ADF reading.
Accessory	G3FAX (super G3FAX board-P1)	Yes	Yes	
	Fin_QR (Finisher-R1/ Saddle Finisher-R2)	Yes	No	The special service tool (Downloader PCB: FY9-2034) is necessary.

16.1.2 Outline of the Service Support Tool

The service supporrt tool (SST, hereafter) provides the following functions:


iR XXXX
PC for service work
SST
HDD setting information
Initializing the HDD
System software
Downloading
system software
HDD
Flash ROM
Flash ROM
Backup data
Uploading backup data
Downloading backup data
Back up RAM
Back up RAM

F-16-1

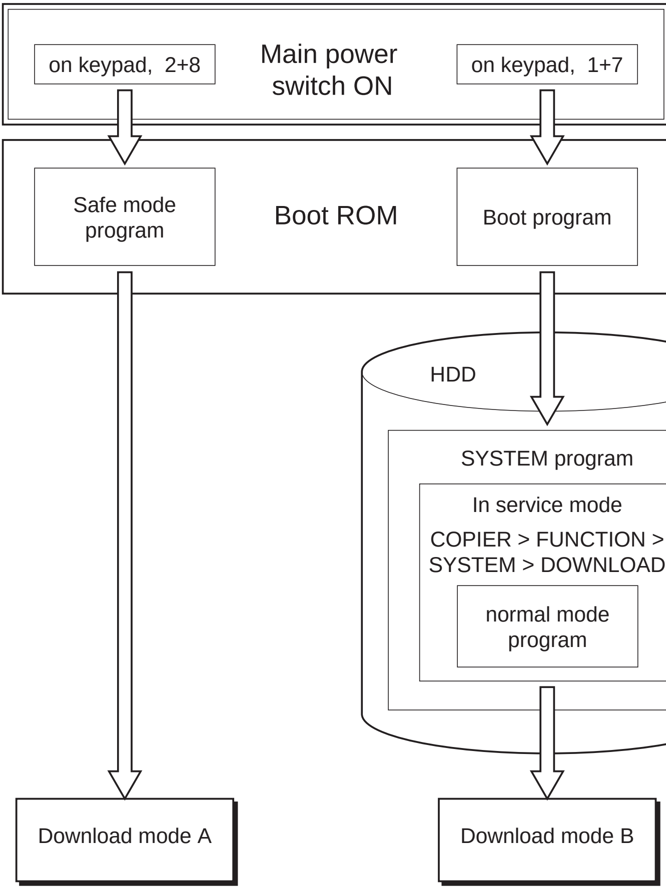
To use the SST, you must first set the machine to download mode.
The machine's download mode consists of 2 types.

-**Normal Mode(Download mode B)**

(With pressing 1+7, turn on the main power switch and select service mode: COPIER> FUNCTION> SYSTEM> DOWNLOAD.)

-Safe Mode(Download mode A)

(With pressing 2+8, turn on the main power switch.)


on keypad, 2+8
Main power switch ON
on keypad, 1+7
Safe mode program
Boot ROM
Boot program
HDD
SYSTEM program
In service mode
COPIER > FUNCTION > SYSTEM > DOWNLOAD
normal mode program
Download mode A
Download mode B

F-16-2

⚠

Use safe mode for the following:
-after replacing the HDD.
-if the system fails to operate normally.

The following shows combinations of functions that may be used in association with the

SST and the download mode:

T-16-2

Function	Download mode Normal mode (download mode B)	 Safe mode (download mode A)
Formatting the HDD	-	ALL
	-	BOOTDEV
	DOSDEV	-
	FSTDEV	-
	DOSDEV2	-
	FSTPDEV	-
	DOSDEV3	-
	PDLDEV	-
	DOSDEV4	-
	DOSDEV5	-
Downloading system software	-System	-System
	-Language	-Language
	-RUI	-RUI
	-Boot	-Boot
	-G3FAX	-
	-Dcon	-
	-Rcon	-
Downloading/ Uploading back up data	-DconSRAM	-
	-RconSRAM	-

16.1.3 Network Interface of the Machine with the SST in Use

The machine communicates with the SST using the Ethernet protocol(TCP/IP).
The machine offers 2 sets of network settings:

-user enviroment network settings

(Additional Function> system contorol settings> network settings)

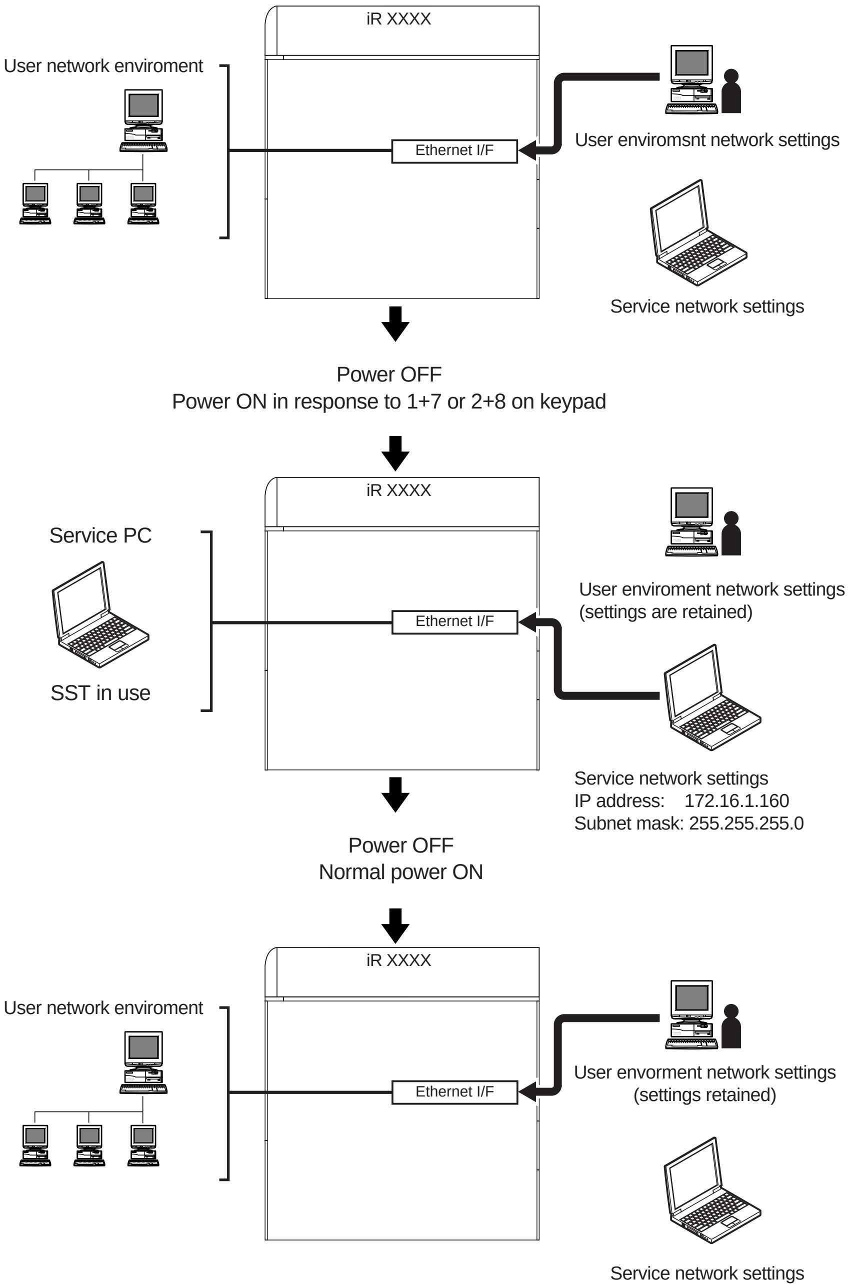
-service network settings

(IP address: 172.16.1.160
Subnet mask: 255.255.255.0)

The netework settings are dependent on how the machine is started up.
The user enviroment settings are retained while the service settings are selected.

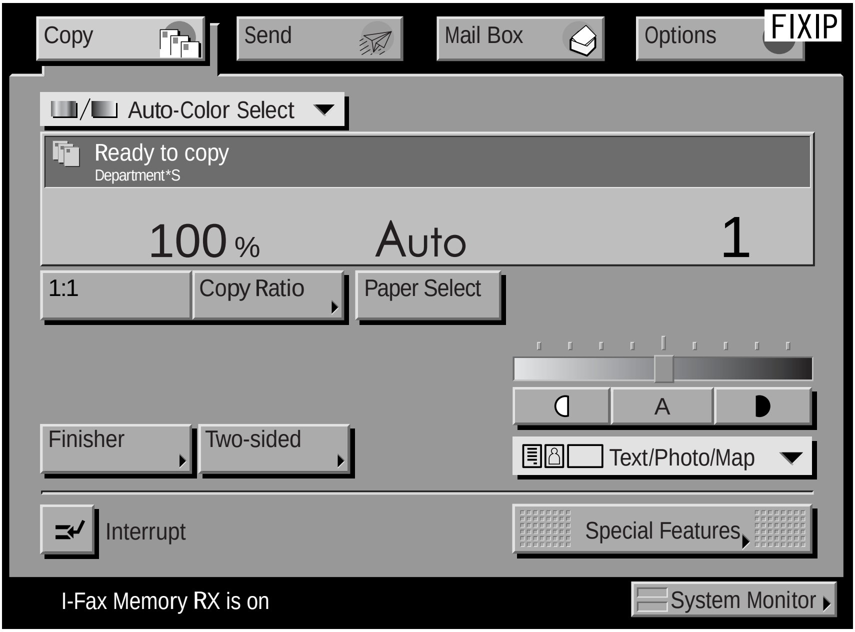
⚠You need not change the user enviroment network settings before or after the SST.

No description page


iR XXXX
User network enviroment
Ethernet I/F
User enviromsnt network settings
Service network settings
Power OFF
Power ON in response to 1+7 or 2+8 on keypad
iR XXXX
Service PC
SST in use
Ethernet I/F
User enviroment network settings
(settings are retained)
Service network settings
IP address: 172.16.1.160
Subnet mask: 255.255.255.0
Power OFF
Normal power ON
iR XXXX
User network enviroment
Ethernet I/F
User envorment network settings
(settings retained)
Service network settings

F-16-3

If you start up the machine by pressing 1+7, the machine indicates **'FIXIP'** in the upper right of the LCD to distinguish its state from normal.


Copy
Send
Mail Box
Options
FIXIP
Auto-Color Select
1:1
Copy Ratio
Paper Select
A
Finisher
Two-sided
Text/Photo/Map
Interrupt
Special Features
System Monitor

Ready to copy
Department*S

100 % Auto 1

I-Fax Memory RX is on

F-16-4

Attension when installed option board

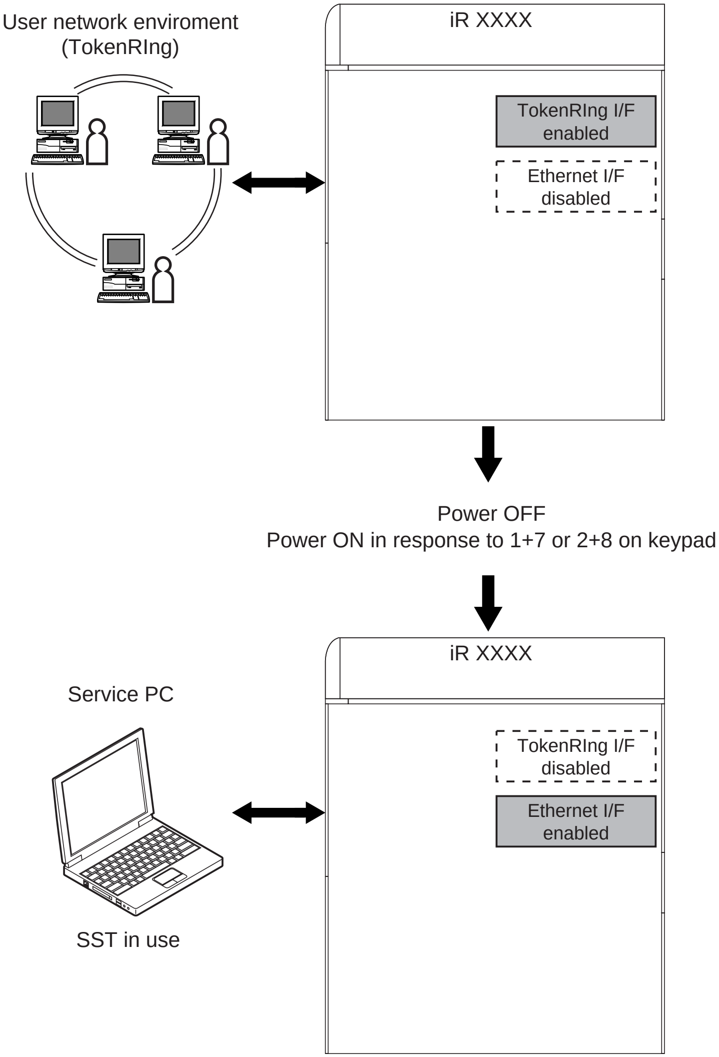
-Normal Power ON

The Ethernet interface is disabled if a TokenRing board is installed.

-Power ON in response to 1+7 or 2+8

The Ethernet interface is enabled if a TokenRing board is installed, and the TokenRing board is disabled.

You need not remove the TokenRing board when connecting the SST.


User network enviroment
(TokenRIng)
iR XXXX
TokenRIng I/F
enabled
Ethernet I/F
disabled
Power OFF
Power ON in response to 1+7 or 2+8 on keypad
iR XXXX
Service PC
TokenRIng I/F
disabled
Ethernet I/F
enabled
SST in use

F-16-5

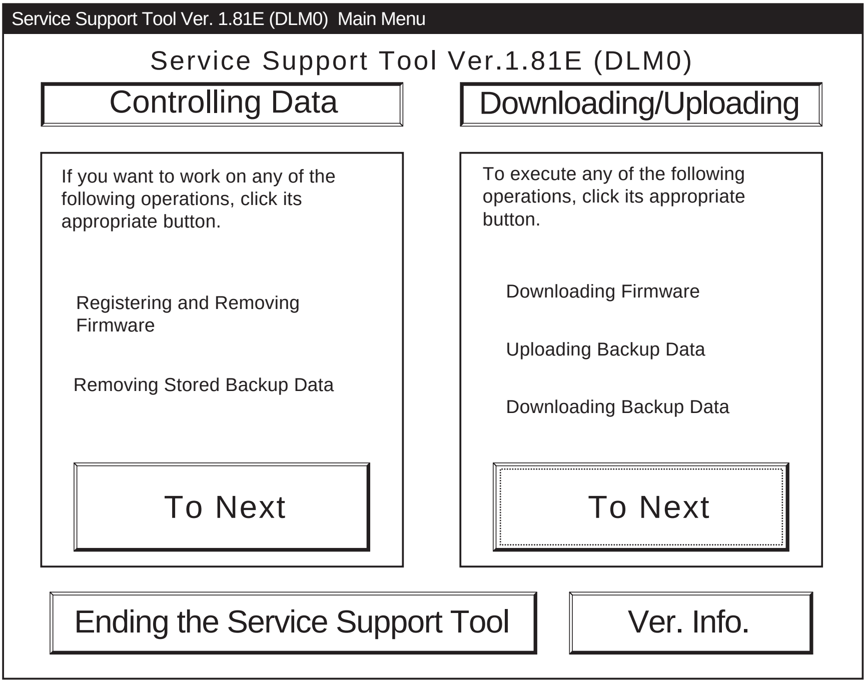
16.2 Making Preparations

16.2.1 Registering the System software

Register the System software stored on the system CD to the SST.

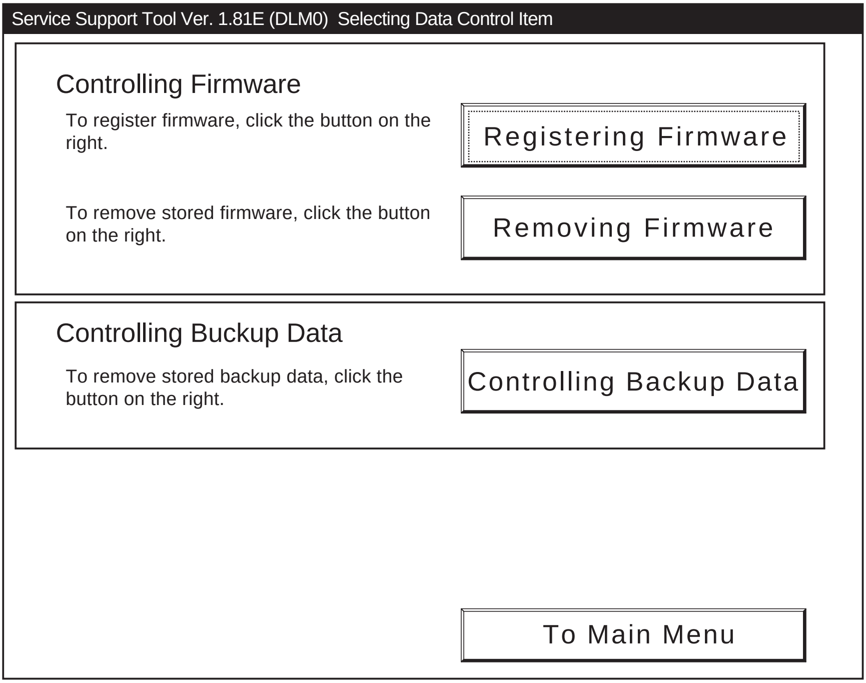
[Before starting the work]
Keep the following on hand:
-PC to which SST v1.73 or later has been installed.
-system CD for iRC6800
(if the machine supports the Netware, prepare the system CD for iRC6800N)

[Registering the System software]
1) Start up the PC.
2) Set the system CD to the PC.
3) Start up the SST.
4) Click [next] under Controlling Data.


Service Support Tool Ver. 1.81E (DLM0) Main Menu
Service Support Tool Ver.1.81E (DLM0)
Controlling Data
Downloading/Uploading
If you want to work on any of the following operations, click its appropriate button.
Registering and Removing Firmware
Removing Stored Backup Data
To Next
To execute any of the following operations, click its appropriate button.
Downloading Firmware
Uploading Backup Data
Downloading Backup Data
To Next
Ending the Service Support Tool
Ver. Info.

F-16-6

5) Click [Registering Firmware].



Service Support Tool Ver. 1.81E (DLM0) Selecting Data Control Item

Controlling Firmware

To register firmware, click the button on the right.

Registering Firmware

To remove stored firmware, click the button on the right.

Removing Firmware

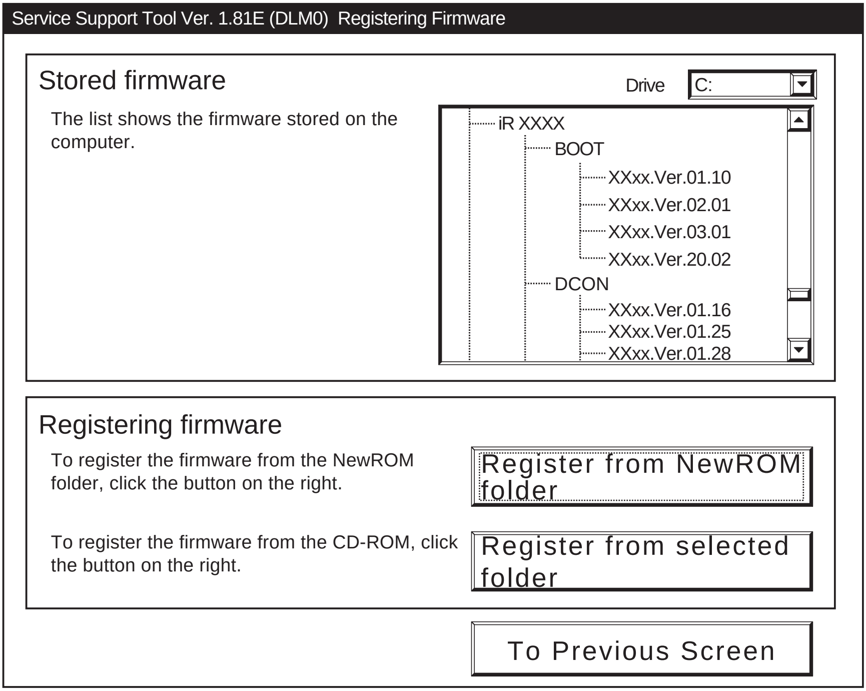
Controlling Buckup Data

To remove stored backup data, click the button on the right.

Controlling Backup Data
To Main Menu

F-16-7

6) Click [Register from selected folder].



Service Support Tool Ver. 1.81E (DLM0) Registering Firmware

Stored firmware

The list shows the firmware stored on the computer.

Drive
C:
iR XXXX
BOOT
XXxx.Ver.01.10
XXxx.Ver.02.01
XXxx.Ver.03.01
XXxx.Ver.20.02
DCON
XXxx.Ver.01.16
XXxx.Ver.01.25
XXxx.Ver.01.28

Registering firmware

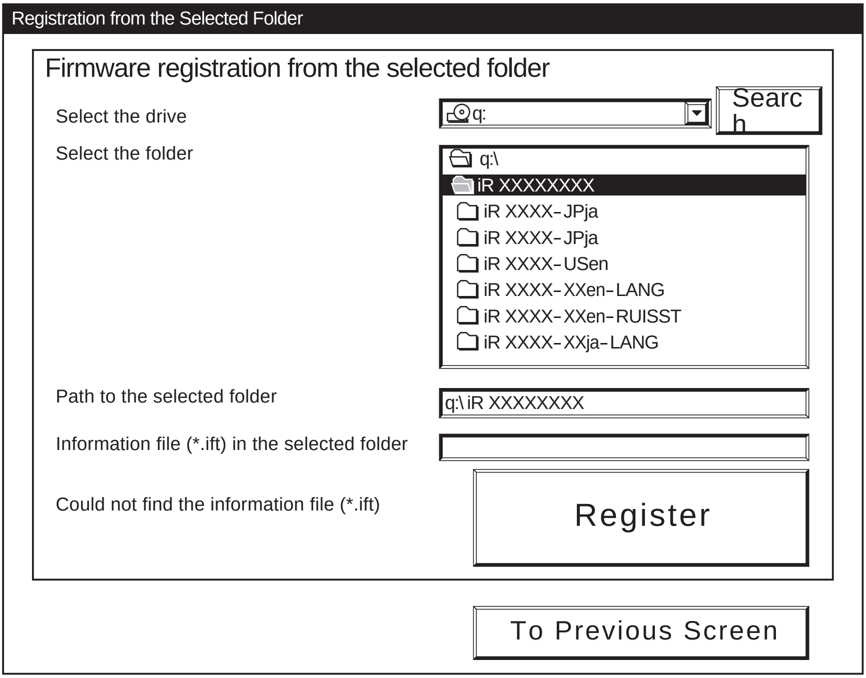
To register the firmware from the NewROM folder, click the button on the right.

To register the firmware from the CD-ROM, click the button on the right.

Register from NewROM folder
Register from selected folder
To Previous Screen

F-16-8

7) Select the drive in which you have set the system CD, and click [Search].


Registration from the Selected Folder
Firmware registration from the selected folder
Select the drive
q:
Search
Select the folder
q:\
iR XXXXXXXX
iR XXXX-JPja
iR XXXX-JPja
iR XXXX-USen
iR XXXX-XXen-LANG
iR XXXX-XXen-RUISST
iR XXXX-XXja-LANG
Register
To Previous Screen

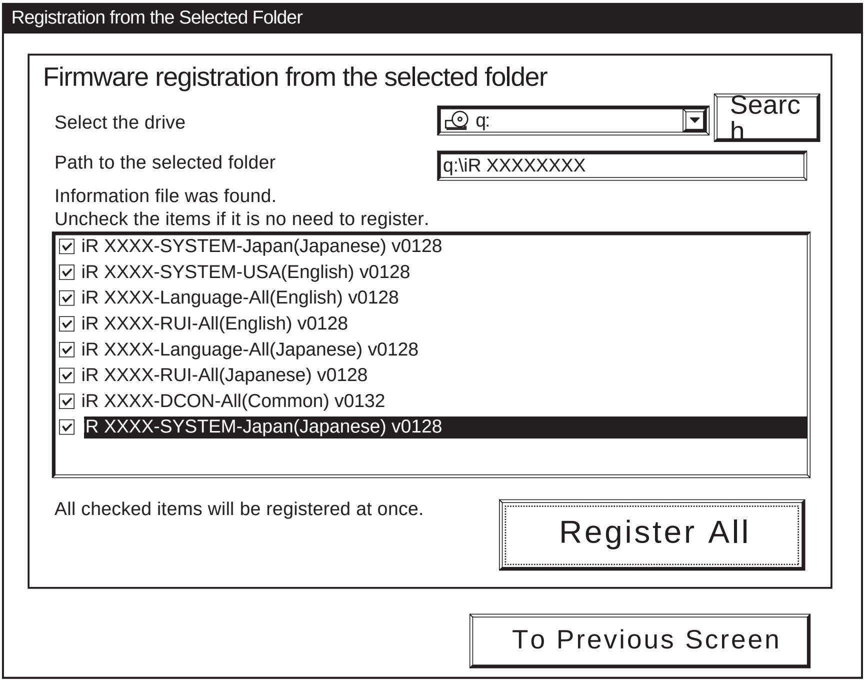
Path to the selected folder: q:\ iR XXXXXXXX

Information file (*.ift) in the selected folder

Could not find the information file (*.ift)

F-16-9

8) When the list of system software items contained on the system CD has appeared, click [Register All] after it becomes enabled.


Registration from the Selected Folder
Search
Register All
To Previous Screen

Firmware registration from the selected folder

Select the drive: q:

Path to the selected folder: q:\iR XXXXXXXX

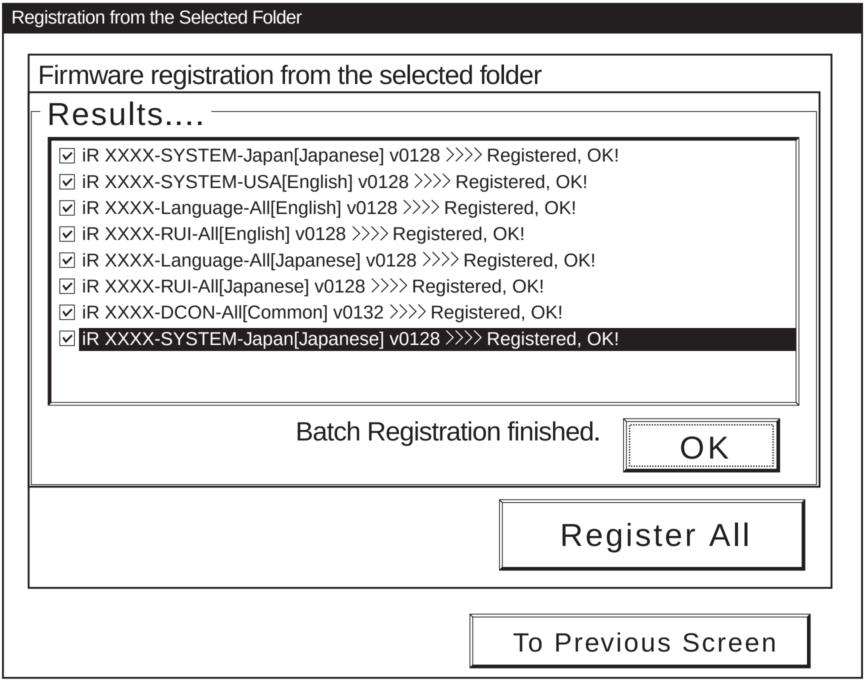
Information file was found.
Uncheck the items if it is no need to register.

- ☑ iR XXXX-SYSTEM-Japan(Japanese) v0128
- ☑ iR XXXX-SYSTEM-USA(English) v0128
- ☑ iR XXXX-Language-All(English) v0128
- ☑ iR XXXX-RUI-All(English) v0128
- ☑ iR XXXX-Language-All(Japanese) v0128
- ☑ iR XXXX-RUI-All(Japanese) v0128
- ☑ iR XXXX-DCON-All(Common) v0132
- ☑ R XXXX-SYSTEM-Japan(Japanese) v0128

All checked items will be registered at once.

F-16-10

9) When the result of the registration have appeared, click [OK].


Registration from the Selected Folder
Firmware registration from the selected folder
Results....
OK
Register All
To Previous Screen

☑ iR XXXX-SYSTEM-Japan[Japanese] v0128 >>>> Registered, OK!
☑ iR XXXX-SYSTEM-USA[English] v0128 >>>> Registered, OK!
☑ iR XXXX-Language-All[English] v0128 >>>> Registered, OK!
☑ iR XXXX-RUI-All[English] v0128 >>>> Registered, OK!
☑ iR XXXX-Language-All[Japanese] v0128 >>>> Registered, OK!
☑ iR XXXX-RUI-All[Japanese] v0128 >>>> Registered, OK!
☑ iR XXXX-DCON-All[Common] v0132 >>>> Registered, OK!
☑ iR XXXX-SYSTEM-Japan[Japanese] v0128 >>>> Registered, OK!

Batch Registration finished.

F-16-11

16.2.2 Making Connections

You will be connecting the PC to the machine.

[Before starting the work]

Keep the following on hand:

-PC to which SST v1.73 or later has been installed and iRC3100 system software has been registered.

-Twisted pair Cross cable

10BASE-T: category 3 or 5

100BASE-T: category 5

[Procedure]

1) Start up the PC.

2) Check the network settings of the PC.

-Type **'IPCONFIG'** to the command prompt, and press the Enter key.

-Check to see that the network settings are as follows:

IP address: 172.16.1.160

Subnet mask: 255.255.255.0

Default gateway: any

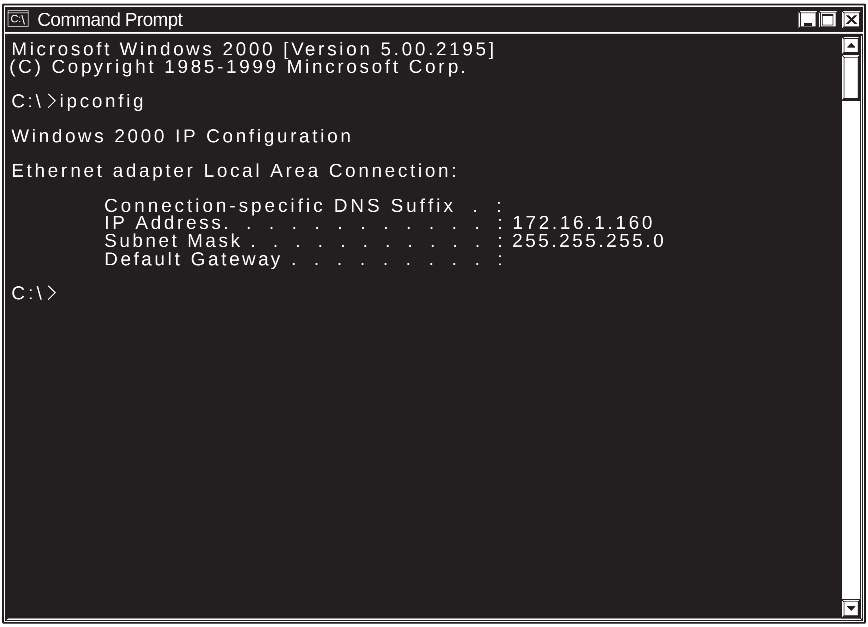
⚠Do not use the following settings.

-172.16.1.0

-172.16.1.100

-172.16.1.255

If the settings are not as indicatred, change the PC network settings:

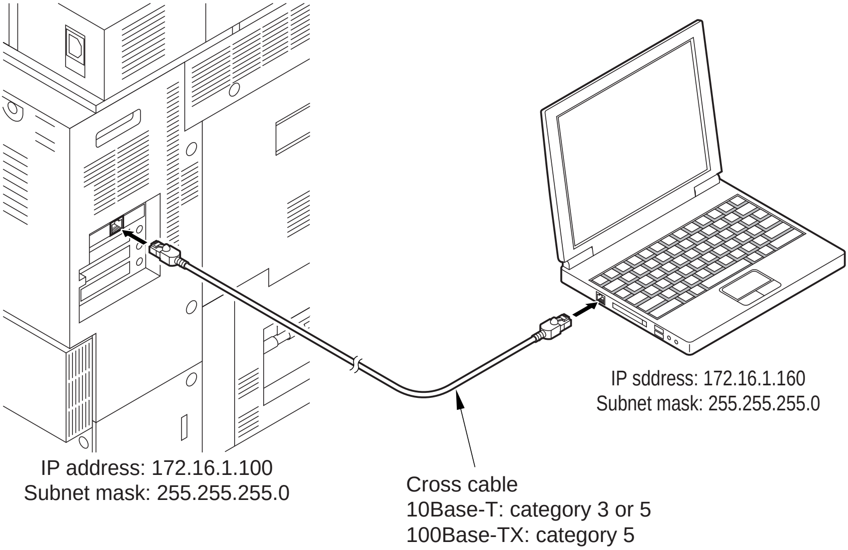


```
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-1999 Mincrosoft Corp.

C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 172.16.1.160
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . :

C:\>
```

F-16-12

3) Check to see that the Execute/Memory lamp on the control panel is OFF; then, turn off the main power switch of the machine.

4) Connect the PC and the machine with a cross cable.


IP sddress: 172.16.1.160
Subnet mask: 255.255.255.0
IP address: 172.16.1.100
Subnet mask: 255.255.255.0
Cross cable
10Base-T: category 3 or 5
100Base-TX: category 5

F-16-13

5) While holding down the keys suited to the download mode you are going to use, turn on the main power switch of the machine.

-if Normal mode

Turn on the main power switch in response to 1+7 on keypad.

Enter sorce mode, make the following selection in service mode:

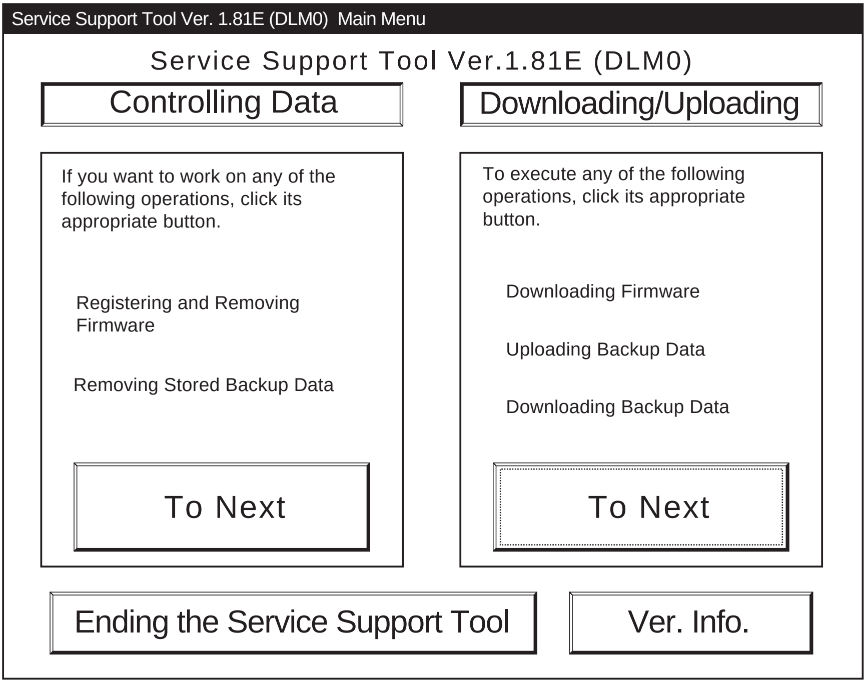
COPIER> FUNCTION> SYSTEM> DOWNLOAD

-if Safe mode

Turn on the main power switch in response to 2+8 on keypad.

6) Start up the SST.

7) Click [To next] under Downloading/Uploading.



Service Support Tool Ver. 1.81E (DLM0) Main Menu

Service Support Tool Ver.1.81E (DLM0)

Controlling Data

If you want to work on any of the following operations, click its appropriate button.

Registering and Removing Firmware

Removing Stored Backup Data

To Next

Downloading/Uploading

To execute any of the following operations, click its appropriate button.

Downloading Firmware

Uploading Backup Data

Downloading Backup Data

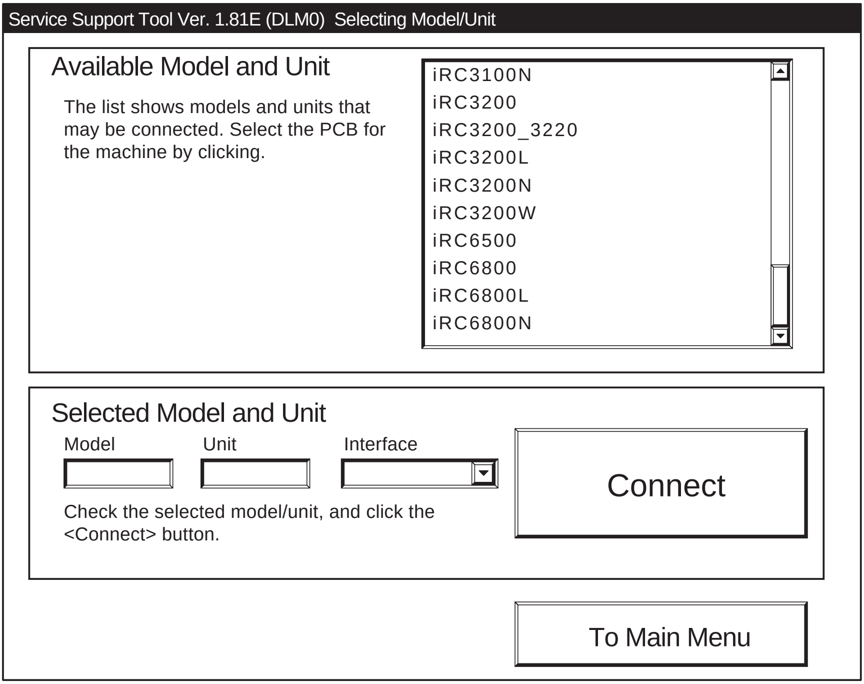
To Next

Ending the Service Support Tool

Ver. Info.

F-16-14

8) Select the model of the machine.



Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iRC3100N
iRC3200
iRC3200_3220
iRC3200L
iRC3200N
iRC3200W
iRC6500
iRC6800
iRC6800L
iRC6800N

Selected Model and Unit

Model

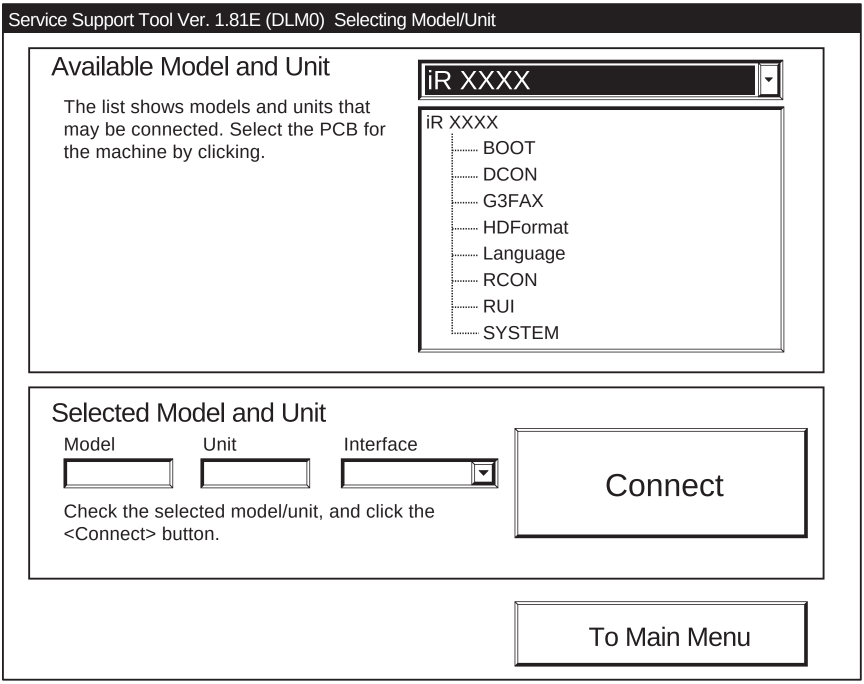
Unit

Interface

Check the selected model/unit, and click the <Connect> button.

F-16-15

9) Select the unit you want, and click [Connect].



Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

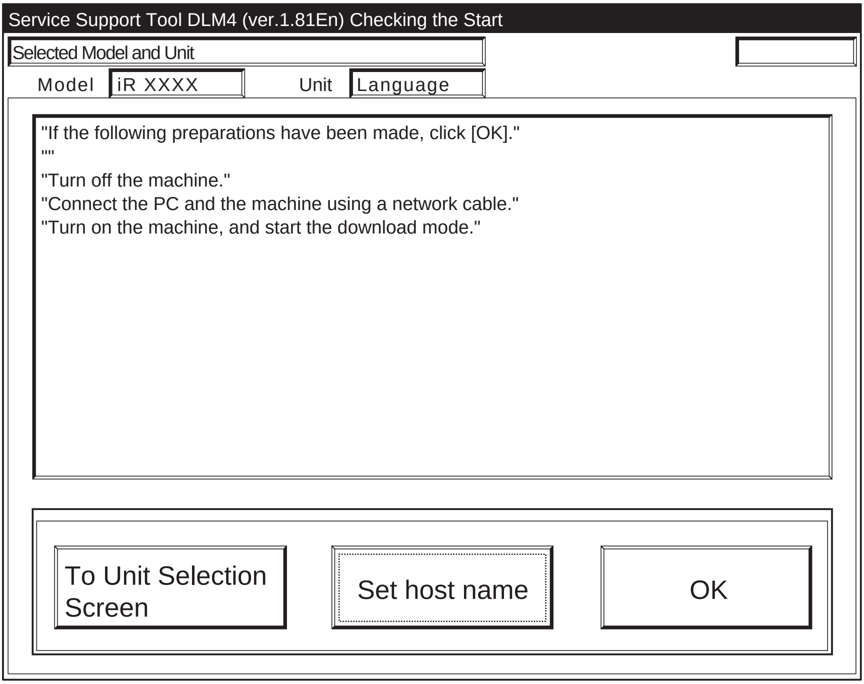
Selected Model and Unit

Check the selected model/unit, and click the <Connect> button.

iR XXXX
iR XXXX
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
SYSTEM
Model
Unit
Interface
Connect
To Main Menu

F-16-16

10) Click [Set host name].

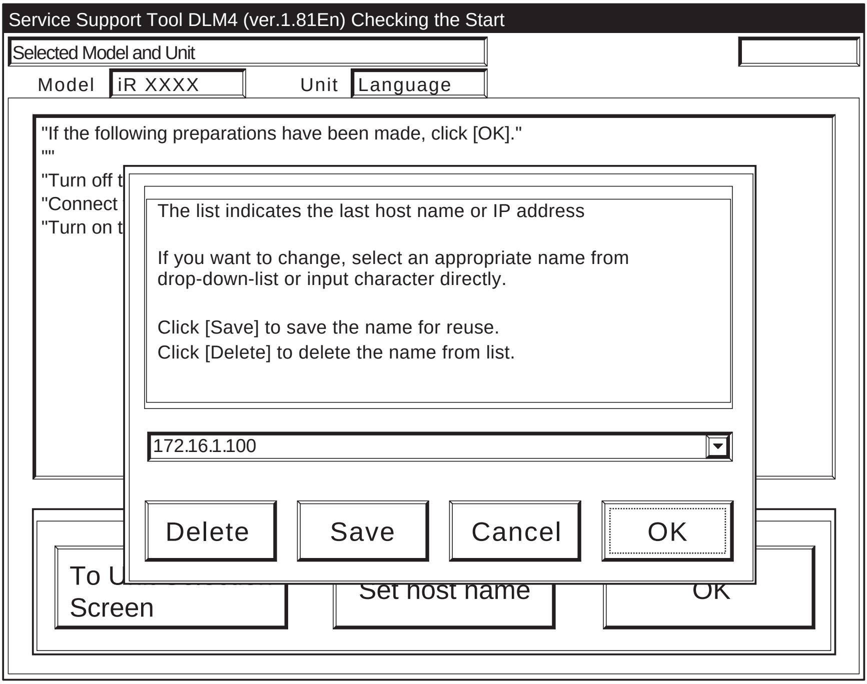


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Model
iR XXXX
Unit
Language
To Unit Selection Screen
Set host name
OK

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-17

11) The machine's IP address is entered automatically; click [OK].


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Delete
Save
Cancel
OK
To U
Screen
Set host name
OK

Model iR XXXX

Unit Language

"If the following preparations have been made, click [OK]."

""

"Turn off t

"Connect

"Turn on t

The list indicates the last host name or IP address

If you want to change, select an appropriate name from drop-down-list or input character directly.

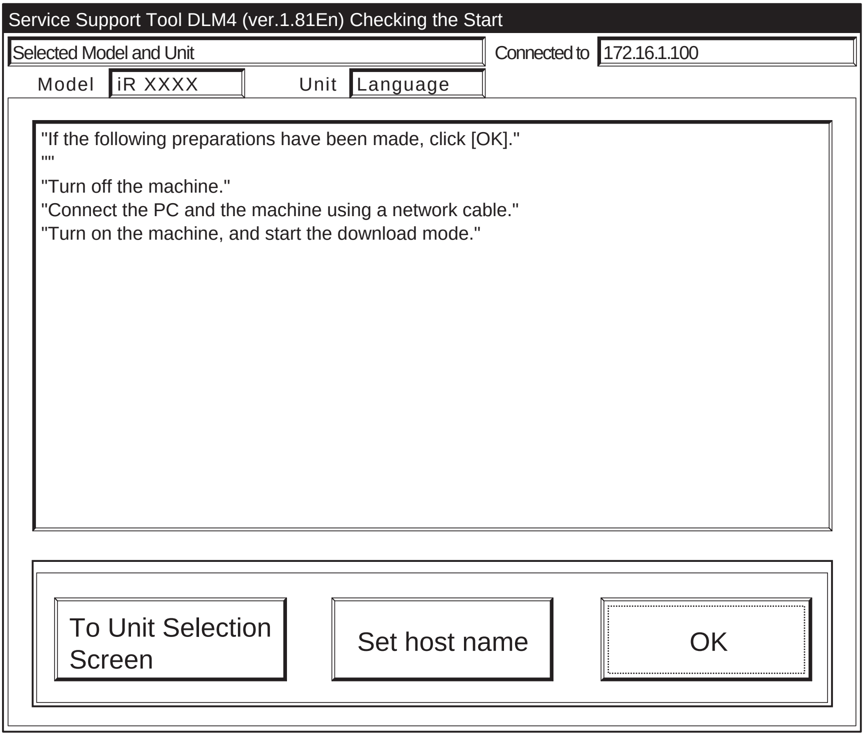
Click [Save] to save the name for reuse.

Click [Delete] to delete the name from list.

172.16.1.100

F-16-18

12) Click [OK] so that the machine makes a connection.



Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

Connected to 172.16.1.100

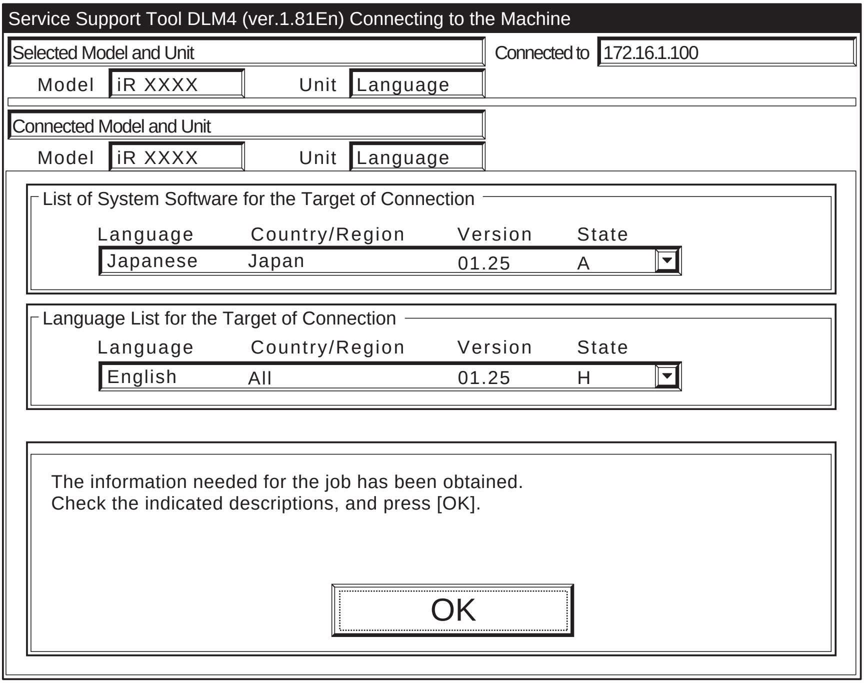
Model iR XXXX

Unit Language

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-19

13) When the machine has made a connection and brings up the following screen, click [OK].



Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine

Selected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit Language

Connected Model and Unit

Model iR XXXX

Unit Language

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Language List for the Target of Connection

Language	Country/Region	Version	State
English	All	01.25	H

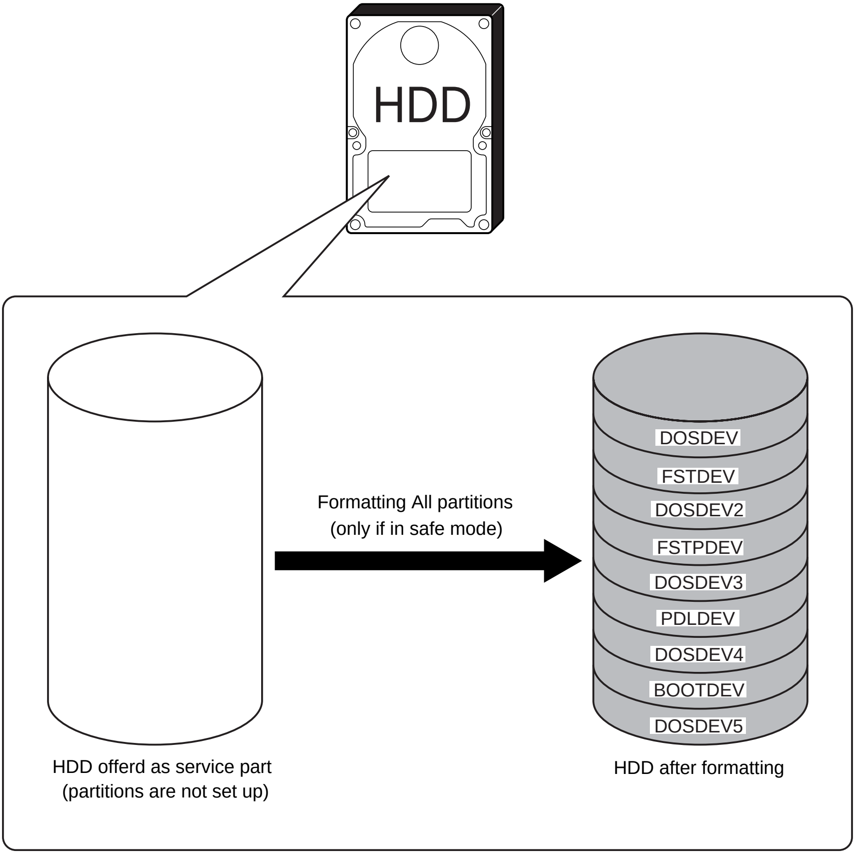
The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-20

16.3 Formatting the HDD

16.3.1 Formatting All Partitions

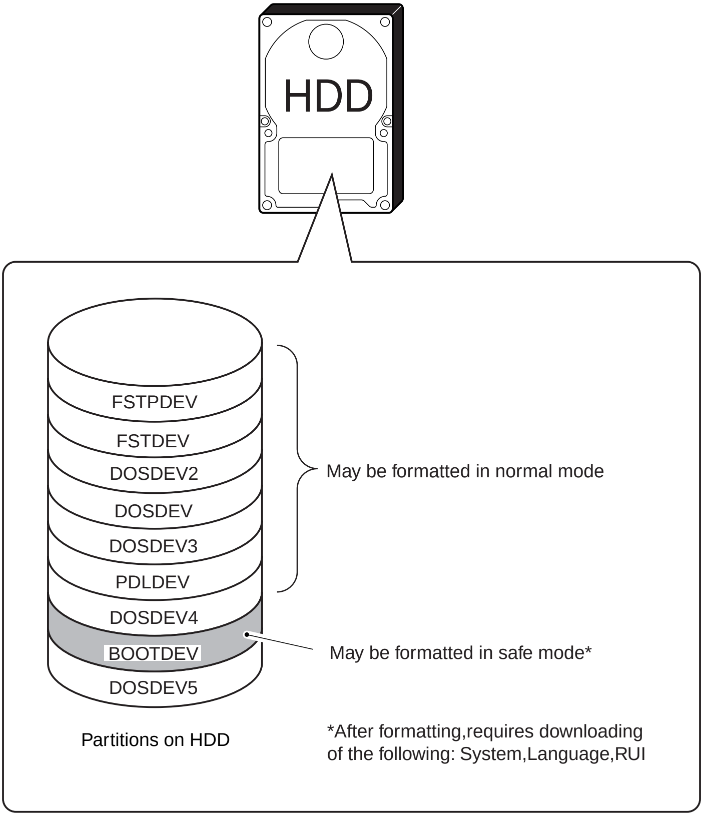
You will be settin up partitions on the HDD and formatting (initializing) them for use by the main controller.


HDD
Formatting All partitions
(only if in safe mode)
DOSDEV
FSTDEV
DOSDEV2
FSTPDEV
DOSDEV3
PDLDEV
DOSDEV4
BOOTDEV
DOSDEV5
HDD offerd as service part
(partitions are not set up)
HDD after formatting

F-16-21

16.3.2 Formatting Selected Partitions

You will be formatting (initializing) partitions that you have selected.


HDD
FSTPDEV
FSTDEV
DOSDEV2
DOSDEV
DOSDEV3
PDLDEV
DOSDEV4
BOOTDEV
DOSDEV5
May be formatted in normal mode
May be formatted in safe mode*
Partitions on HDD
*After formatting,requires downloading of the following: System,Language,RUI

F-16-22

Formatting Partitions Using the SST

T-16-3

Name of partition selected by the SST	Partition that is formatted
FSTDEV	FSTDEV, FSTPDEV, DOSDEV, DOSDEV2
DOSDEV3	DOSDEV3

Name of partition selected by the SST	Partition that is formatted
PDLDEV	PDLDEV
DOSDEV4	DOSDEV4
DOSDEV5	DOSDEV5
BOOTDEV	BOOTDEV

⚠

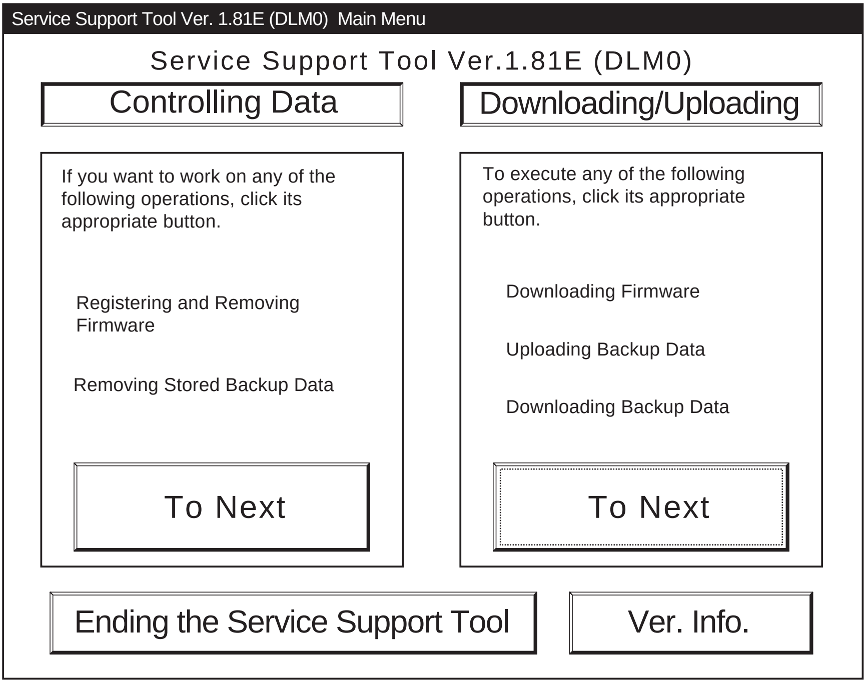
-4 partitions (FSTDEV, FSTPDEV, DOSDEV, DOSDEV2) are formatted at hte same time.
-Formatting of DOSDEV4 requires the use of the SST.

The actual formatting of FSTDEV and PDLDEV takes place when the machine is started up the next time, and it takes as long as the following:
Formatting of FSTDEV: 2 min (approx.)
Formatting of PDLDEV: 5 min (approx.)
Formatting of All partitions: 7 min (approx.)

-The times vary according to the state of the HDD, and the progress of formatting is indicated by means of a progress bar.

16.3.3 Formatting the Procedure

1) Click [To next] under Downloading/Uploading.



Service Support Tool Ver. 1.81E (DLM0) Main Menu
Service Support Tool Ver.1.81E (DLM0)
Controlling Data
Downloading/Uploading

If you want to work on any of the following operations, click its appropriate button.

Registering and Removing Firmware

Removing Stored Backup Data

To execute any of the following operations, click its appropriate button.

Downloading Firmware

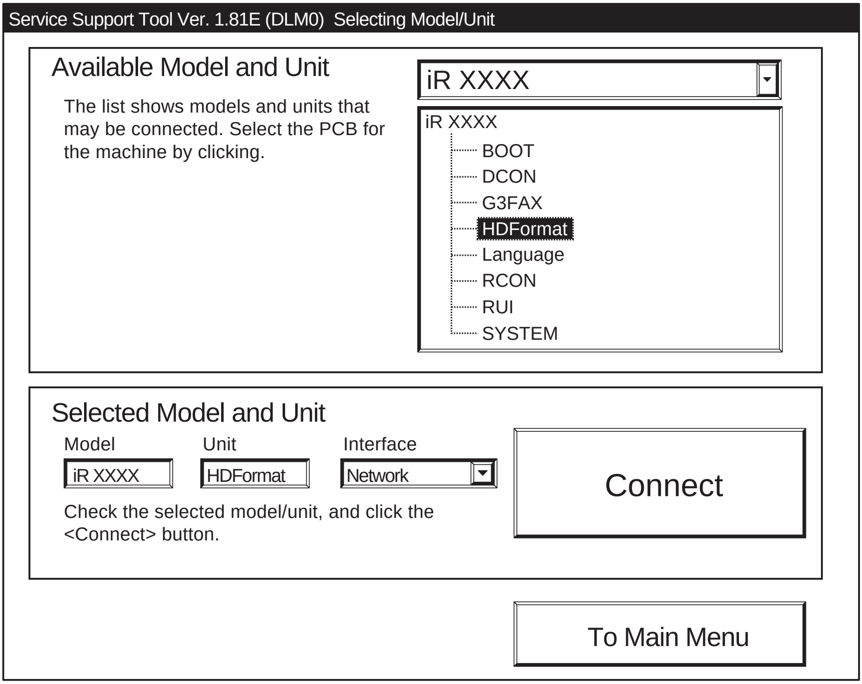
Uploading Backup Data

Downloading Backup Data

To Next
To Next
Ending the Service Support Tool
Ver. Info.

F-16-23

2) Select [HDForamt], and click [Connect].



Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iR XXXX

- iR XXXX
  - BOOT
  - DCON
  - G3FAX
  - HDFormat
  - Language
  - RCON
  - RUI
  - SYSTEM

Selected Model and Unit

Model: iR XXXX

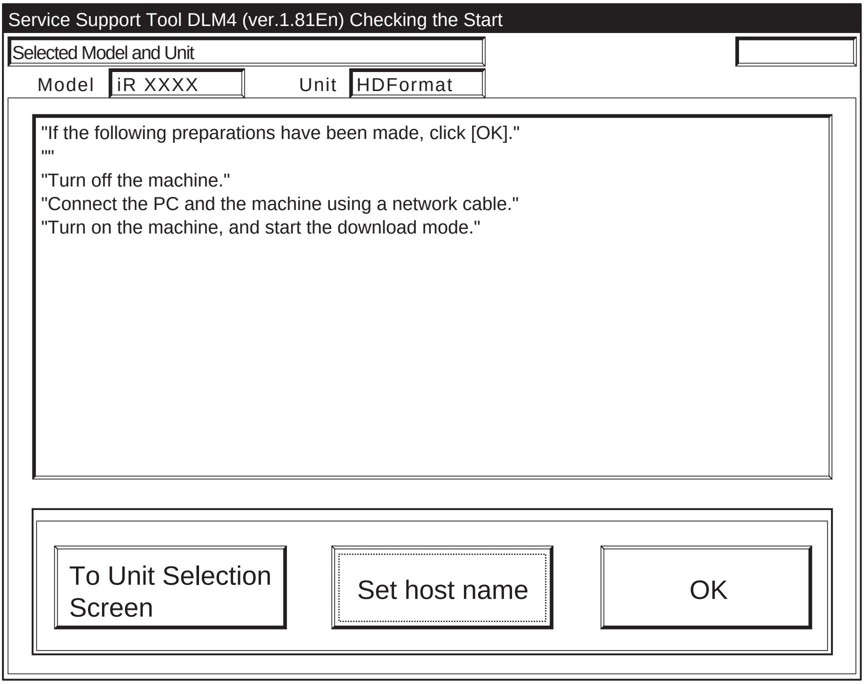
Unit: HDFormat

Interface: Network

Check the selected model/unit, and click the <Connect> button.

F-16-24

3) Click [Set host name].


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

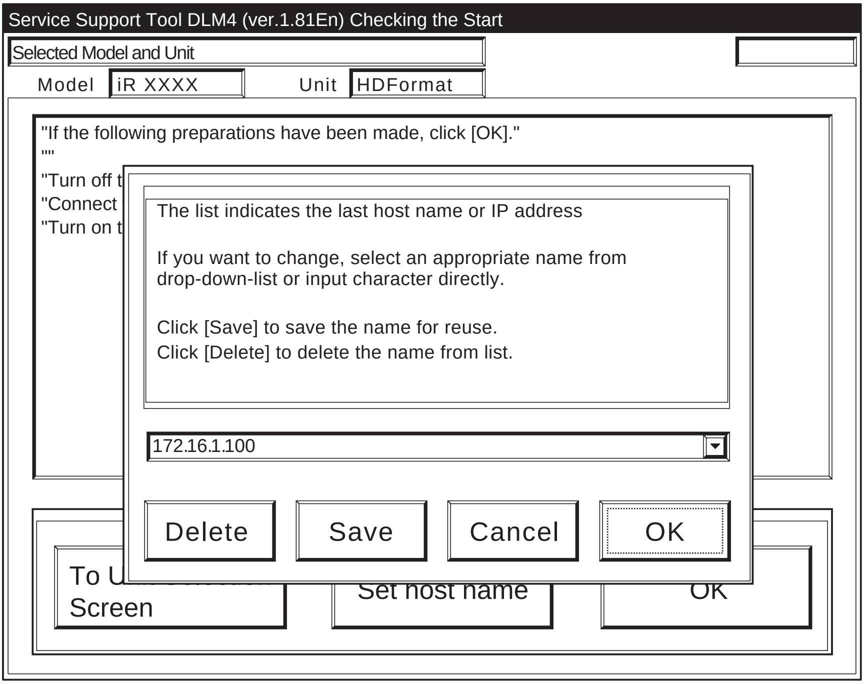
Model iR XXXX

Unit HDFormat

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-25

4) The machiine's IP address is entered automatically; click [OK].



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Model iR XXXX Unit HDFormat

"If the following preparations have been made, click [OK]."
""
"Turn off t
"Connect
"Turn on t

The list indicates the last host name or IP address

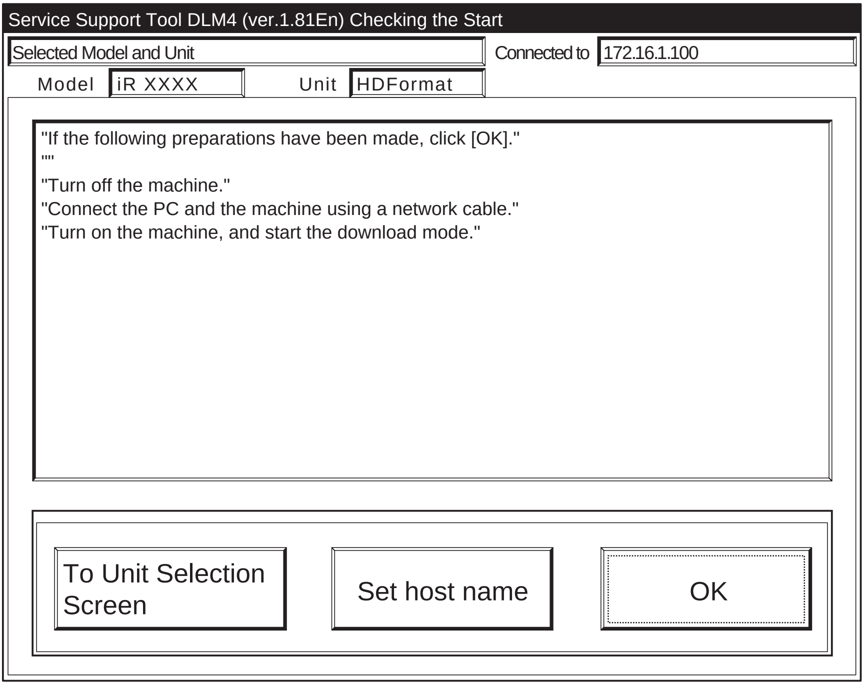
If you want to change, select an appropriate name from drop-down-list or input character directly.

Click [Save] to save the name for reuse.
Click [Delete] to delete the name from list.

172.16.1.100

F-16-26

5) Click [OK] to start connection.


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

Connected to 172.16.1.100

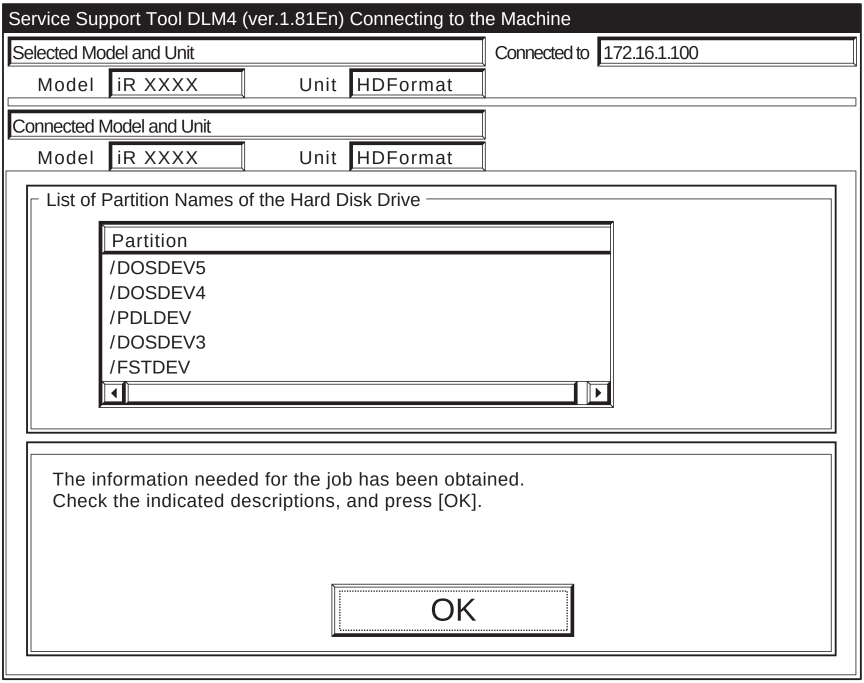
Model iR XXXX

Unit HDFormat

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-27

6) When the machine has made a connection and brings up the following screen, click [OK].



Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine

Selected Model and Unit

Model: iR XXXX

Unit: HDFormat

Connected to: 172.16.1.100

Connected Model and Unit

Model: iR XXXX

Unit: HDFormat

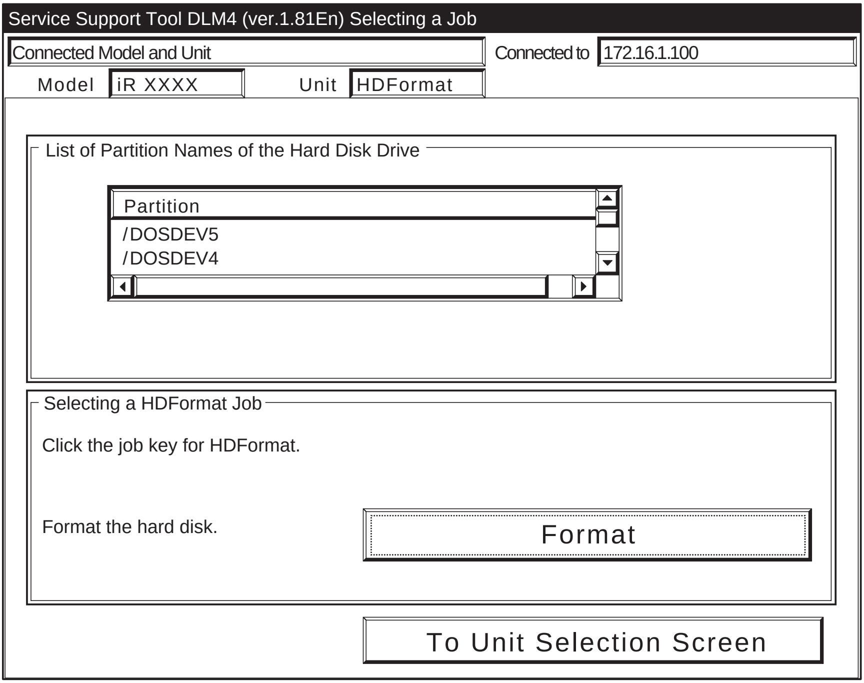
List of Partition Names of the Hard Disk Drive

Partition
/DOSDEV5
/DOSDEV4
/PDLDEV
/DOSDEV3
/FSTDEV

The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-28

7) Click [Format].



Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: HDFormat

List of Partition Names of the Hard Disk Drive

Partition
/DOSDEV5
/DOSDEV4

Selecting a HDFormat Job

Click the job key for HDFormat.

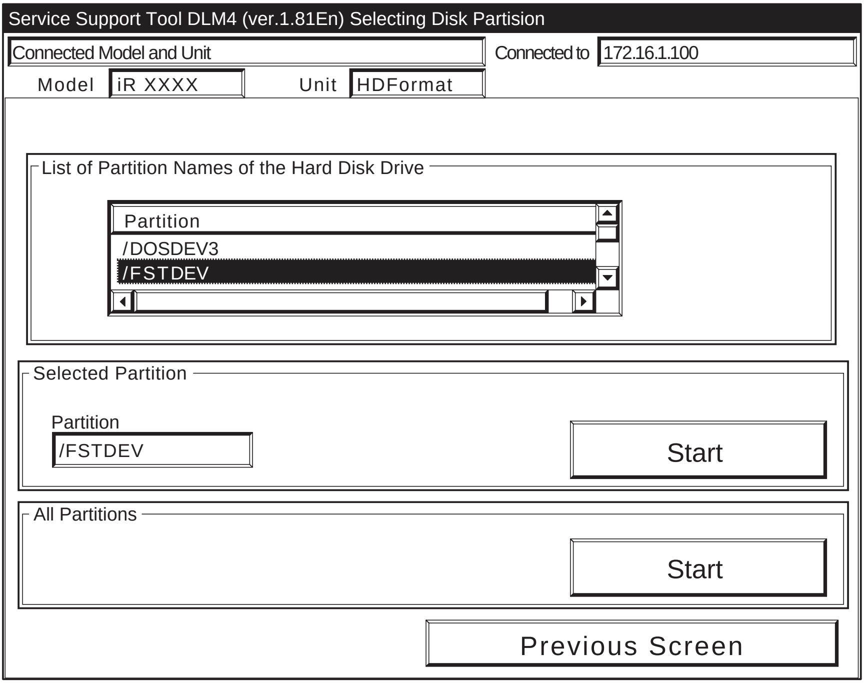
Format the hard disk.

F-16-29

8) Select the partition you want to format from the list, and click [start].

When formatting all partitions, click [start] under All partitions (enabled if in safe mode).

-A.If formatting in Normal Mode (Power ON in response to 1+7)



Service Support Tool DLM4 (ver.1.81En) Selecting Disk Partision

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit HDFormat

List of Partition Names of the Hard Disk Drive

Partition
/DOSDEV3
/FSTDEV

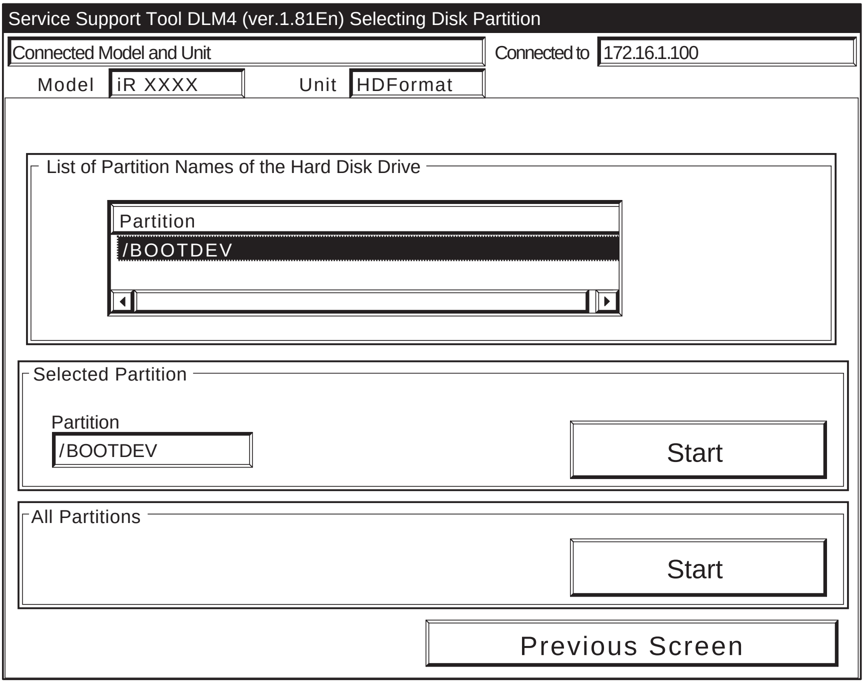
Selected Partition

Partition /FSTDEV

Start
All Partitions
Start
Previous Screen

F-16-30

-B.If formatting in Safe Mode (Power ON in response to 2+8)



Service Support Tool DLM4 (ver.1.81En) Selecting Disk Partition

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: HDFormat

List of Partition Names of the Hard Disk Drive

Partition
/BOOTDEV

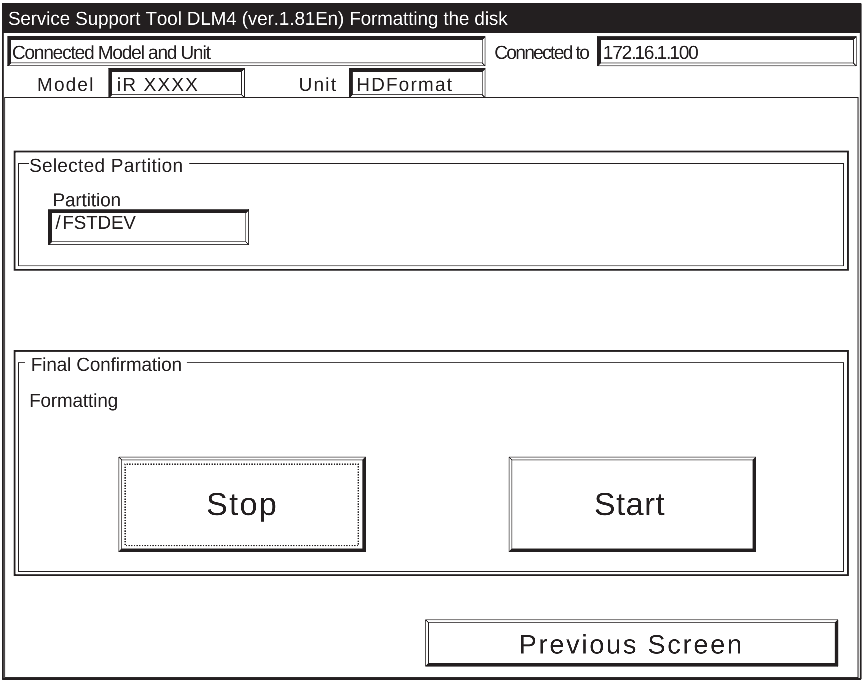
Selected Partition

Partition: /BOOTDEV

Start
All Partitions
Start
Previous Screen

F-16-31

9) When the machine indicates the message for confirmation for the last time, click [Start].



Service Support Tool DLM4 (ver.1.81En) Formatting the disk

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit HDFormat

Selected Partition

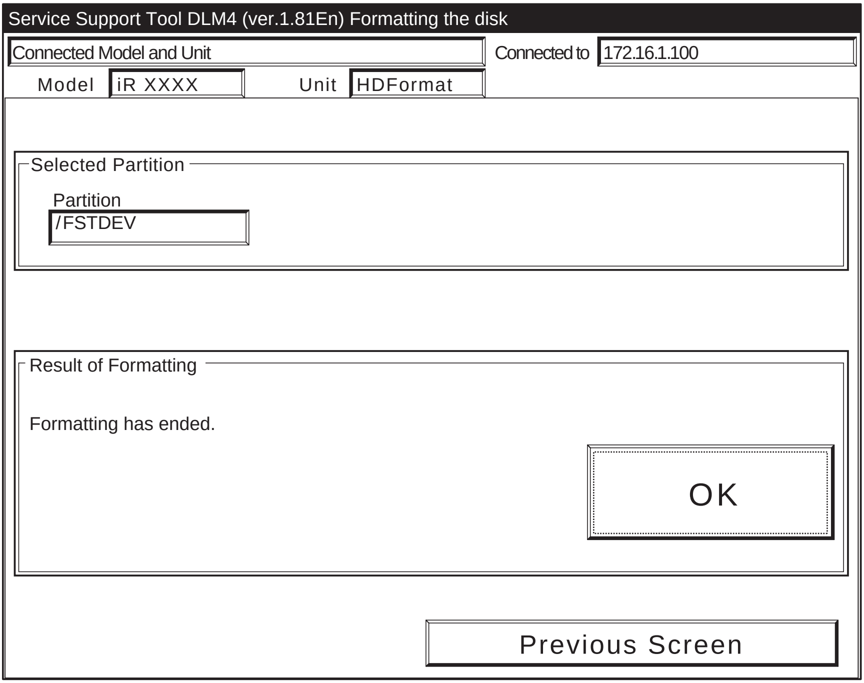
Partition /FSTDEV

Final Confirmation

Formatting

F-16-32

10) After the machine indicates the message to the indicate the end of formatting, click [OK].


Service Support Tool DLM4 (ver.1.81En) Formatting the disk

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit HDFormat

Selected Partition

Partition /FSTDEV

Result of Formatting

Formatting has ended.

F-16-33

11) Click [To Unit Selectioin Screen].

⚠

-If you have formatted all partitions or BOOTDEV, you must download the following:
System, Language, RUI
(If you fail to download these, an error(E602) will ocur when the main power switch is turned ON.)

-The actual formattin of FSTDEV and PDLDEV takes place when the machine is started up the next time, and it takes as long as the following:
Formatting of FSTDEV: 2 min (approx.)
Formatting of PDLDEV: 5 min (approx.)
Formatting of All partitions: 7 min (approx.)

-The times vary according to the state of the HDD, and the progress of formatting is indicated by means of a progress bar.

-You must not turn off the machine's main power switch while the progress bar is shown.

16.4 Downloading System Software

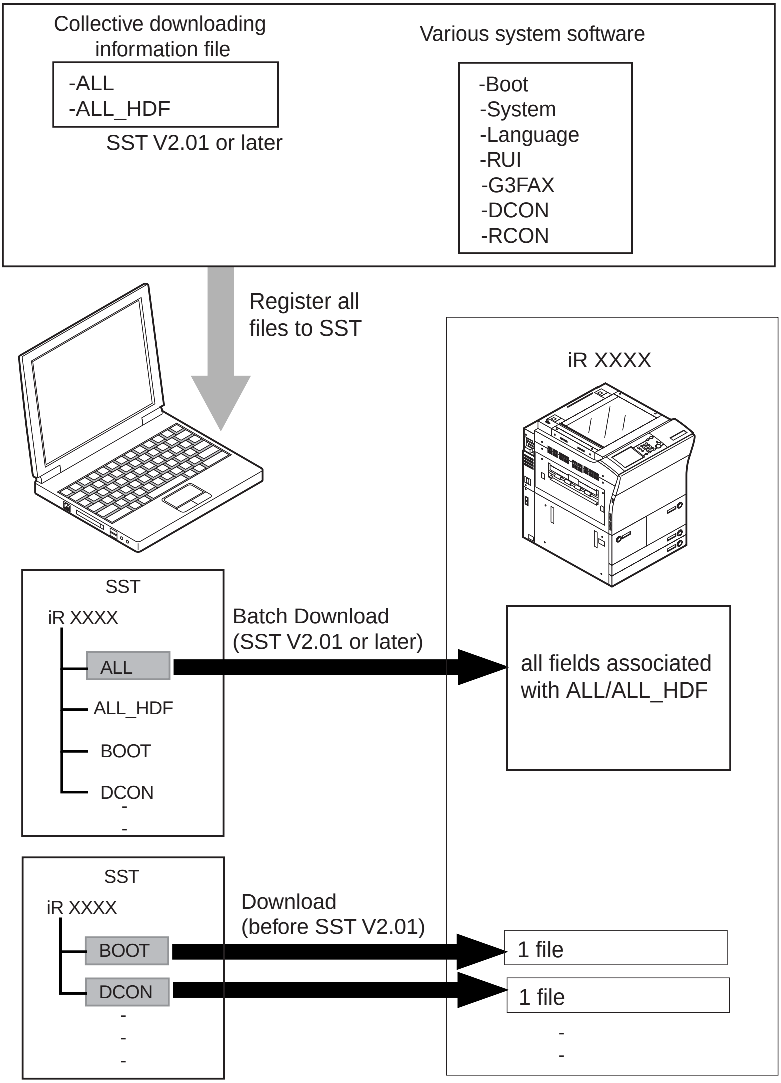
16.4.1 Batch Downloading

16.4.1.1 Overview

If you need to download multiple pieces of system software, you can do so automatically. To make use of batch downloading, you need to have the following:

-SST v2.01 or later

<Files to Register in the SST>
-information file for batch downloading
-system software


Collective downloading information file
-ALL
-ALL_HDF
SST V2.01 or later
Various system software
-Boot
-System
-Language
-RUI
-G3FAX
-DCON
-RCON
Register all files to SST
iR XXXX
SST
iR XXXX
ALL
ALL_HDF
BOOT
DCON
Batch Download (SST V2.01 or later)
all fields associated with ALL/ALL_HDF
SST
iR XXXX
BOOT
DCON
Download (before SST V2.01)
1 file
1 file

F-16-34

Memo

An information file for batch downloading:

It contains appropriate combinations of system software versions to download. Once it is registered in the SST, the relevant files will be identified by the notation "ALL" and "ALL_HDF".

⚠

ALL/ALL_HDF does not include the various system software itself.

To register ALL/ALL_HDF, be sure also to register the various system software at the same time.

Clicking 'ALL' or 'ALL_HDF' will download **the following system software pieces that have been registerd in SST** in sequence:

[to HDD]
- System (system software)
- Language (language module)
- RUI (Remote UI)

[to each PCB]
- Boot (boot program)
- DCON (DC controller)
- RCON (reader controller)

16.4.1.2 Downloading Procedure

[Memo]

You can use either of the following two approaches for a downloading session as long as you have selected the appropriate "downloading information file":

- normal mode (turn on the main power while holding down 1+7): ALL

- safe mode (turn on the main power while holding down 2+8): ALL_HDF

[Items to Prepare]

Check to be sure that you have the following on hand:

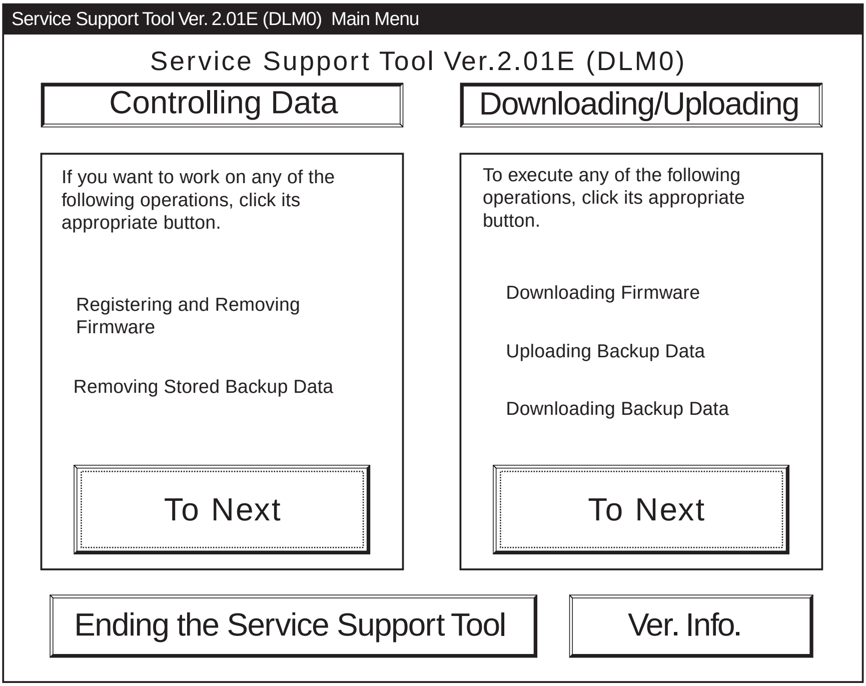
- PC to which SST v2.01 or later has been installed
- iR C6800 System CD

A. Prepare for the Batch Download (Registering the Information File)

A-1) Start up the PC.

A-2) Start up the Service Support Tool.

A-3) Click [next] under [Controlling Data].

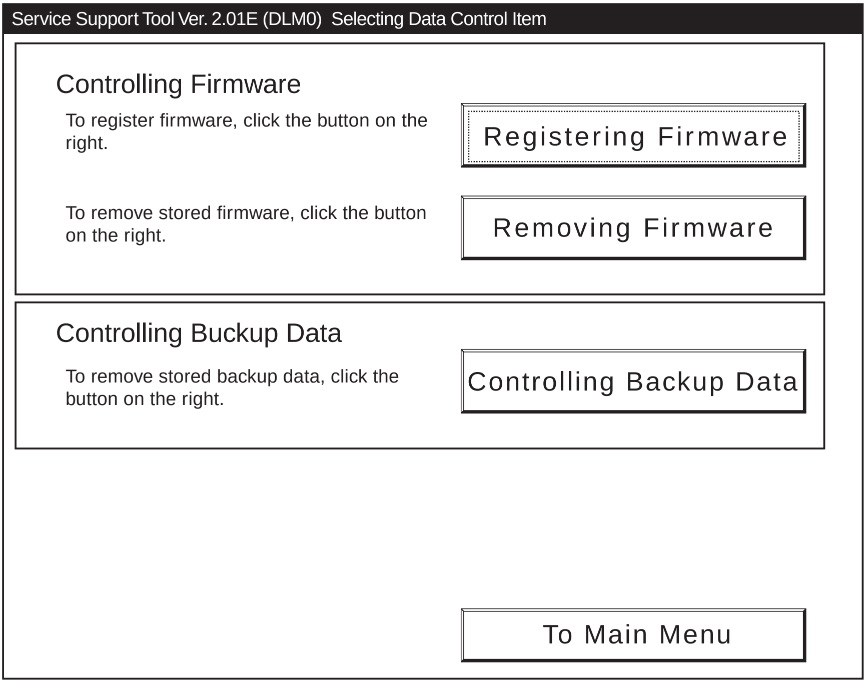

Service Support Tool Ver. 2.01E (DLM0) Main Menu
Service Support Tool Ver.2.01E (DLM0)
Controlling Data
Downloading/Uploading
Registering and Removing Firmware
Removing Stored Backup Data
Downloading Firmware
Uploading Backup Data
Downloading Backup Data
To Next
To Next
Ending the Service Support Tool
Ver. Info.

If you want to work on any of the following operations, click its appropriate button.

To execute any of the following operations, click its appropriate button.

F-16-35

A-4) Click [Registering Firmware].



Service Support Tool Ver. 2.01E (DLM0) Selecting Data Control Item

Controlling Firmware

To register firmware, click the button on the right.

To remove stored firmware, click the button on the right.

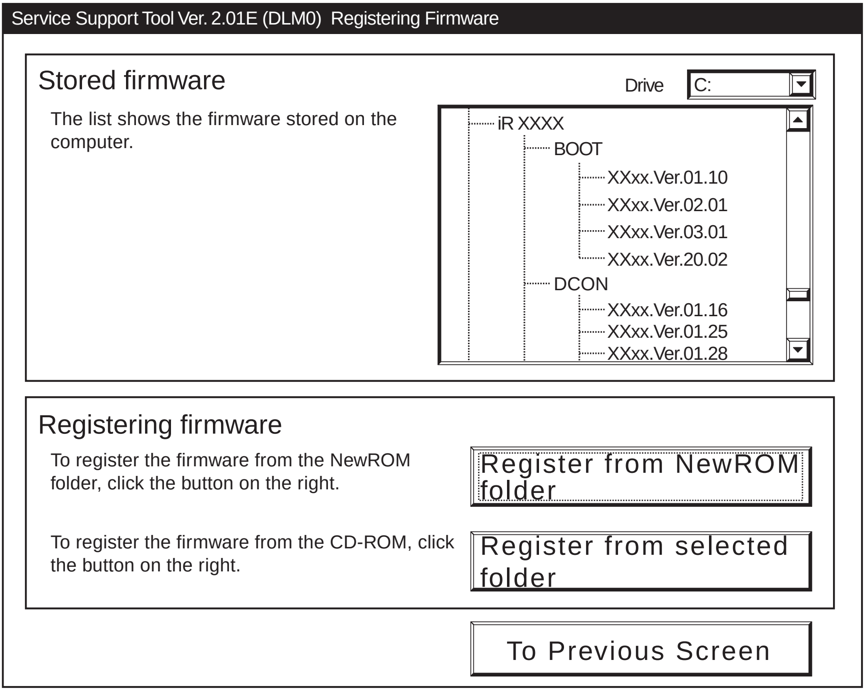
Controlling Buckup Data

To remove stored backup data, click the button on the right.

Registering Firmware
Removing Firmware
Controlling Backup Data
To Main Menu

F-16-36

A-5) Click [register from selected folder].



Service Support Tool Ver. 2.01E (DLM0) Registering Firmware

Stored firmware

The list shows the firmware stored on the computer.

Drive
C:
iR XXXX
BOOT
XXxx.Ver.01.10
XXxx.Ver.02.01
XXxx.Ver.03.01
XXxx.Ver.20.02
DCON
XXxx.Ver.01.16
XXxx.Ver.01.25
XXxx.Ver.01.28

Registering firmware

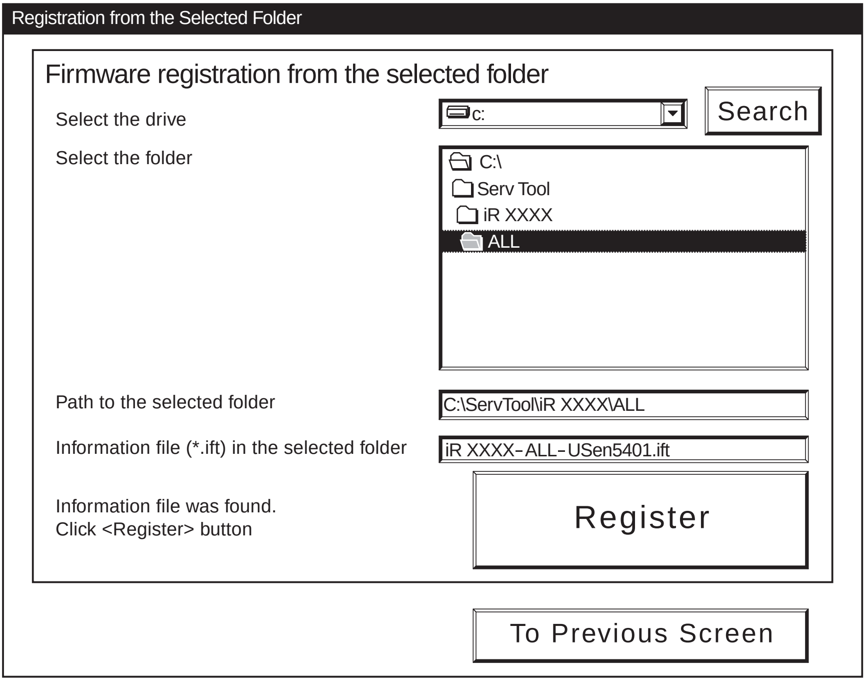
To register the firmware from the NewROM folder, click the button on the right.

To register the firmware from the CD-ROM, click the button on the right.

Register from NewROM folder
Register from selected folder
To Previous Screen

F-16-37

A-6) Select the folder containing the collective download information file, and click [Register].



Registration from the Selected Folder

Firmware registration from the selected folder

Select the drive: c:

Select the folder:
C:\
Serv Tool
iR XXXX
ALL

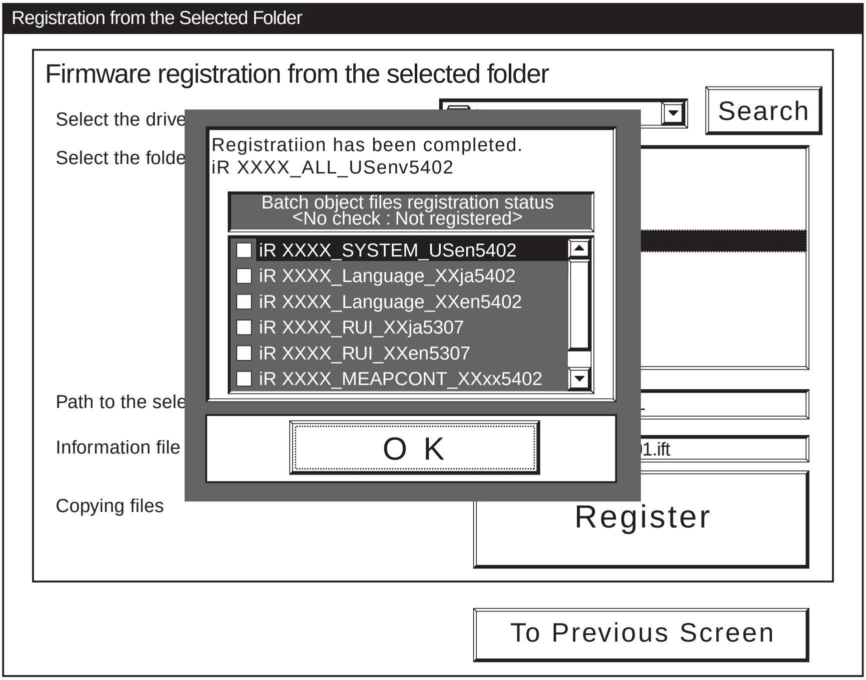
Path to the selected folder: C:\ServTool\iR XXXX\ALL

Information file (*.ift) in the selected folder: iR XXXX-ALL-USen5401.ift

Information file was found.
Click <Register> button

F-16-38

A-7) When 'Batch object files registration status' has appeared, click [OK].


Registration from the Selected Folder
Firmware registration from the selected folder
Select the drive
Search
Select the folde
Path to the sele
Information file
1.ift
Copying files
Register
O K
To Previous Screen

Registratiion has been completed.
iR XXXX_ALL_USenv5402

Batch object files registration status
<No check : Not registered>

☐ iR XXXX_SYSTEM_USen5402
☐ iR XXXX_Language_XXja5402
☐ iR XXXX_Language_XXen5402
☐ iR XXXX_RUI_XXja5307
☐ iR XXXX_RUI_XXen5307
☐ iR XXXX_MEAPCONT_XXxx5402

F-16-39

⚠

If you choose "Register All" using version 2.01 of the SST,

ALL will not be indicated under "Batch object files registration status" and all the check boxes of the field remain blank. Although this seems to indicate that no system software has been registered, the system software you have selected has been registered.

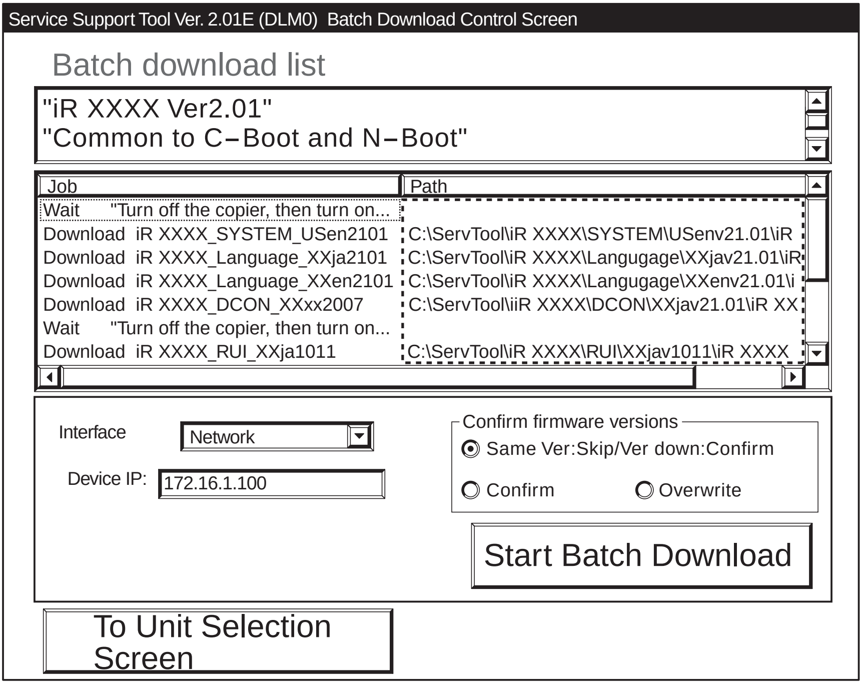
(In the case of version 2.02 or later of the SST, the appropriate check boxes will be checked.)

<Making Sure That the Appropriate System Software Has Been Registered>

1) On the Models and Units screen, select 'ALL' or 'ALL_HDF'.

2) Click [Batch Download].

3) Check to see that the Batch Download File List screen indicates the paths to the individual pieces of system software.



Service Support Tool Ver. 2.01E (DLM0) Batch Download Control Screen

Batch download list

"iR XXXX Ver2.01"
"Common to C−Boot and N−Boot"

Job	Path
Wait "Turn off the copier, then turn on...	
Download iR XXXX_SYSTEM_USen2101	C:\ServTool\iR XXXX\SYSTEM\USenv21.01\iR
Download iR XXXX_Language_XXja2101	C:\ServTool\iR XXXX\Langugage\XXjav21.01\iR
Download iR XXXX_Language_XXen2101	C:\ServTool\iR XXXX\Langugage\XXenv21.01\i
Download iR XXXX_DCON_XXxx2007	C:\ServTool\iiR XXXX\DCON\XXjav21.01\iR XX
Wait "Turn off the copier, then turn on...	
Download iR XXXX_RUI_XXja1011	C:\ServTool\iR XXXX\RUI\XXjav1011\iR XXXX

Interface: Network

Device IP: 172.16.1.100

Confirm firmware versions

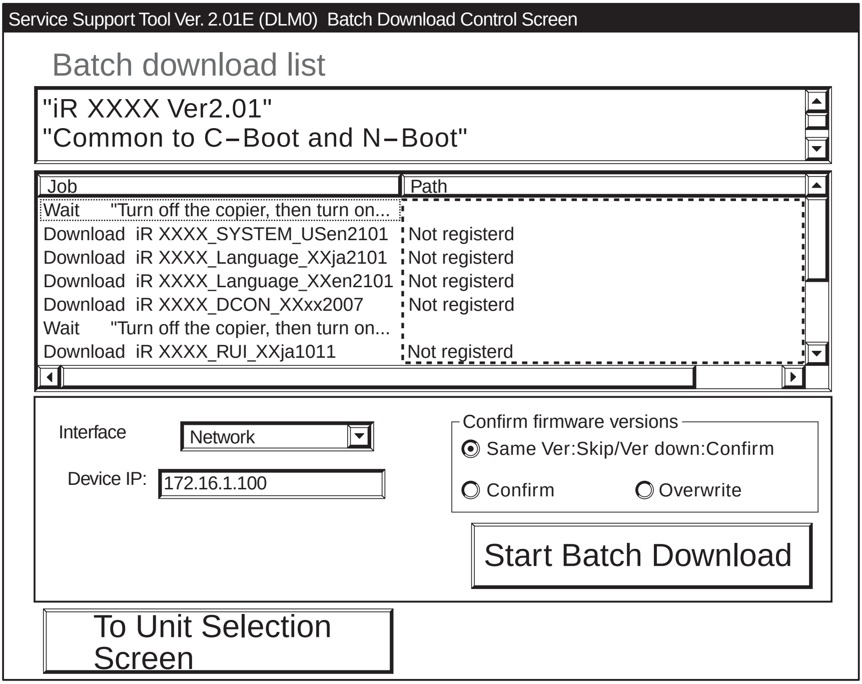
● Same Ver:Skip/Ver down:Confirm

○ Confirm ○ Overwrite

F-16-40

Memo:

Any piece of system software that has not been registered is indicated by an appropriate notation for its path. Be sure to use [Registering Firmware] for the work.


Service Support Tool Ver. 2.01E (DLM0) Batch Download Control Screen
Start Batch Download
To Unit Selection Screen

Batch download list

"iR XXXX Ver2.01"
"Common to C–Boot and N–Boot"

Job	Path
Wait "Turn off the copier, then turn on...	
Download iR XXXX_SYSTEM_USen2101	Not registerd
Download iR XXXX_Language_XXja2101	Not registerd
Download iR XXXX_Language_XXen2101	Not registerd
Download iR XXXX_DCON_XXxx2007	Not registerd
Wait "Turn off the copier, then turn on...	
Download iR XXXX_RUI_XXja1011	Not registerd

Interface: Network

Device IP: 172.16.1.100

Confirm firmware versions
● Same Ver:Skip/Ver down:Confirm
○ Confirm ○ Overwrite

F-16-41

B. Executing Batch Downloading

Memo:

Although it varies from one type of system software to another, a typical session is executed as follows according to the mode you select:

Be sure to use safe mode, however, if you have formatted the HDD.

<Downloading in Normal mode>

1) Start up the PC and the copier (by turning on the main power while holding down 1+7).
2) Start downloading (SYSTEM, Language, Boot, DCON).
3) Turn off the copier, and start it up again in normal mode.

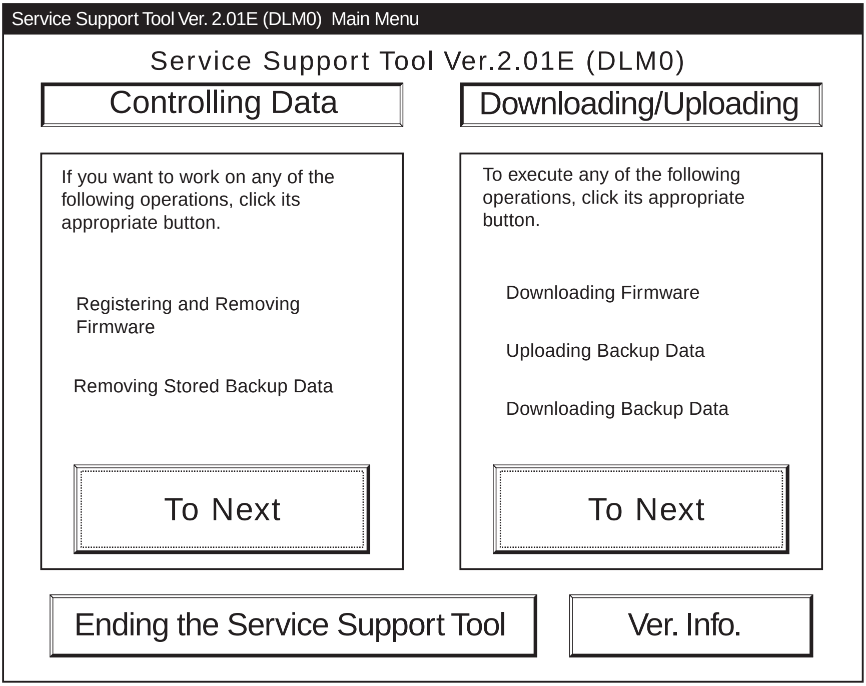
4) Start downloading (RUI, RCON).

<Downloading in Safe Mode>

1) Start up the PC and the copier (but turning on the main power while holding down 2+8).
2) Start downloading (SYSTEM, Language, RUI).
   If you have formatted the HDD, the HDD will be in its initial state at this point.
3) Start downloading (BOOT).
4) Turn off the copier, and start it up again in normal mode.
5) Start downloading (DCON).
6) Turn off the copier, and start it up against in normal mode.
7) Start downloading (RCON).

The steps are following in the case of normal mode.

B-1) On the Main Menu screen of the Service Support Tool, click [To Next] under [Downloading/Uploading].



If you want to work on any of the following operations, click its appropriate button.

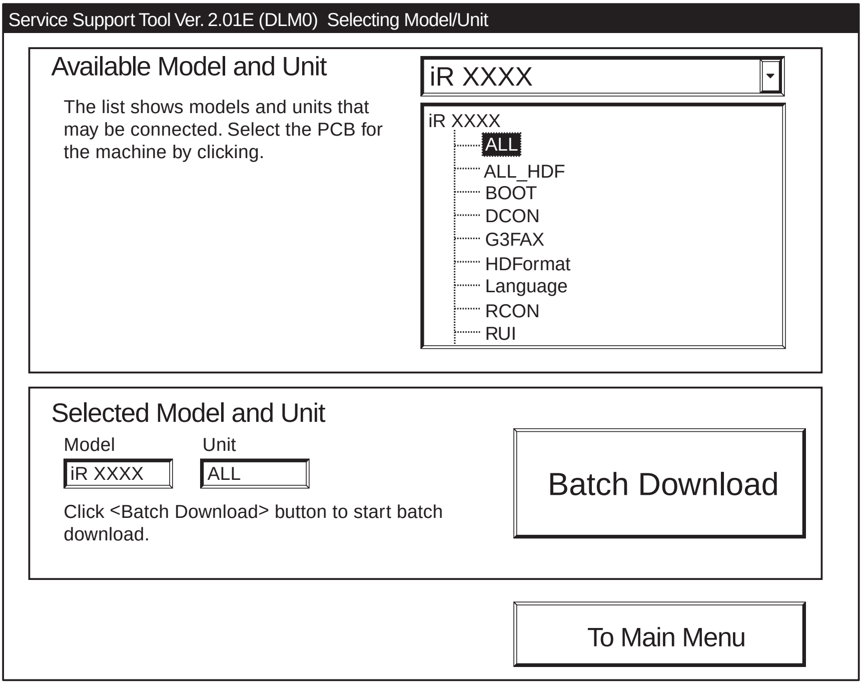
To execute any of the following operations, click its appropriate button.

Service Support Tool Ver. 2.01E (DLM0) Main Menu
Service Support Tool Ver.2.01E (DLM0)
Controlling Data
Downloading/Uploading
Registering and Removing Firmware
Removing Stored Backup Data
To Next
Downloading Firmware
Uploading Backup Data
Downloading Backup Data
To Next
Ending the Service Support Tool
Ver. Info.

F-16-42

B-2) Select the file of the model name you have previously checked; then, click [all].

B-3) Click [Batch Download].


Service Support Tool Ver. 2.01E (DLM0) Selecting Model/Unit
iR XXXX
ALL
ALL_HDF
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
Batch Download
To Main Menu

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iR XXXX

Selected Model and Unit

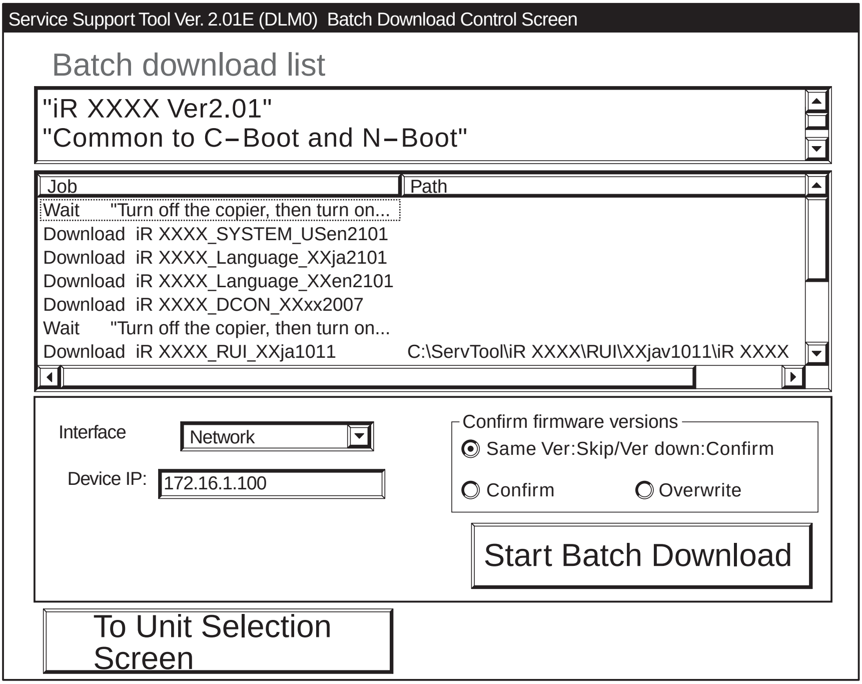
Model: iR XXXX

Unit: ALL

Click <Batch Download> button to start batch download.

F-16-43

B-4) See that the Batch Download File List screen has appeared.



Service Support Tool Ver. 2.01E (DLM0) Batch Download Control Screen

Batch download list

"iR XXXX Ver2.01"
"Common to C–Boot and N–Boot"

Job	Path
Wait "Turn off the copier, then turn on...	
Download iR XXXX_SYSTEM_USen2101	
Download iR XXXX_Language_XXja2101	
Download iR XXXX_Language_XXen2101	
Download iR XXXX_DCON_XXxx2007	
Wait "Turn off the copier, then turn on...	
Download iR XXXX_RUI_XXja1011	C:\ServTool\iR XXXX\RUI\XXjav1011\iR XXXX

Interface: Network

Device IP: 172.16.1.100

Confirm firmware versions

● Same Ver:Skip/Ver down:Confirm

○ Confirm ○ Overwrite

F-16-44

Confirm firmware versions

The System will check the following two items, and indicate the result, permitting you to check the progress of downloading:

-a: system software that has been installed to the machine
-b: system software that will be downloaded

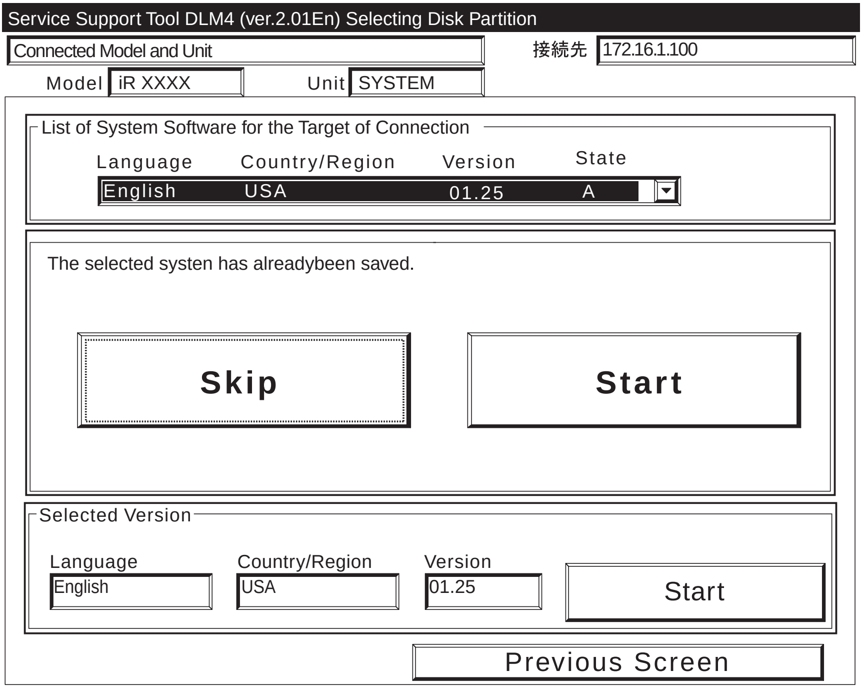
There are 3 patterns to confirm:
-Same Ver:Skip/Ver down:Confirm
-Confirm
-Overwrite

T-16-4

	SST indication		
	same version:skip / ver down: confirm	**confirm**	**overwrite**
b is older (Downgrade)	check and then download	check and download	download
a and b of same version	do not download	check and download	download
b is new (Upgrade)	download	download	download

<Confirmation Message for Downgrading>
You will not be able to select a different version even if you select 'Skip'.
(The session will move to the confirmation of the next system software.)

⚠In the case of version 2.01 of the SST, the notation 'Skip' is replaced by the notation 'Select Again'. The response, however, will be the same.


Service Support Tool DLM4 (ver.2.01En) Selecting Disk Partition

Connected Model and Unit

接続先 172.16.1.100

Model iR XXXX

Unit SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
English	USA	01.25	A

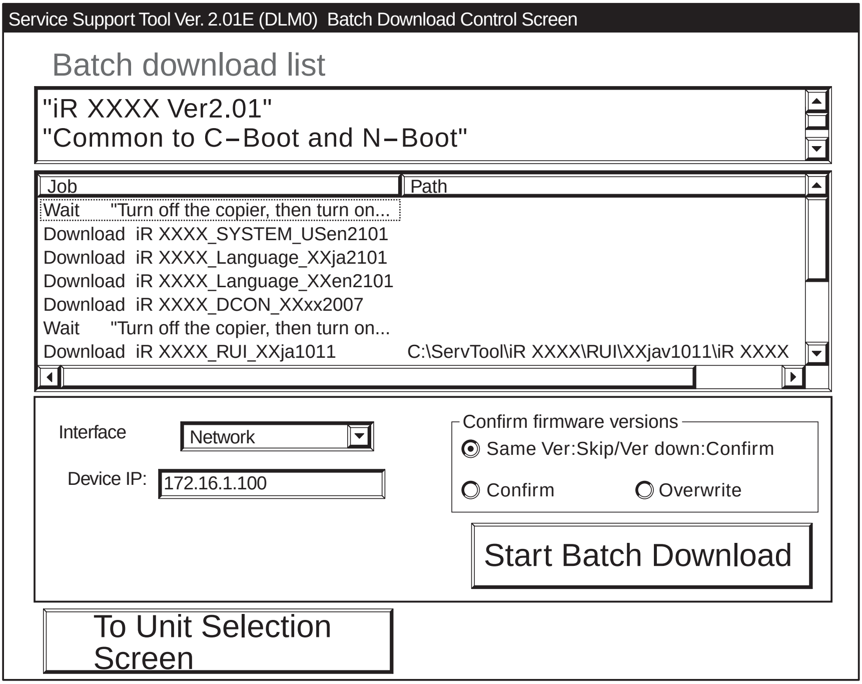
The selected systen has alreadybeen saved.

Selected Version

Language	Country/Region	Version
English	USA	01.25

F-16-45

B-5) Click [Start Batch Download].



Service Support Tool Ver. 2.01E (DLM0) Batch Download Control Screen

Batch download list

"iR XXXX Ver2.01"
"Common to C–Boot and N–Boot"

Job	Path
Wait "Turn off the copier, then turn on...	
Download iR XXXX_SYSTEM_USen2101	
Download iR XXXX_Language_XXja2101	
Download iR XXXX_Language_XXen2101	
Download iR XXXX_DCON_XXxx2007	
Wait "Turn off the copier, then turn on...	
Download iR XXXX_RUI_XXja1011	C:\ServTool\iR XXXX\RUI\XXjav1011\iR XXXX

Interface: Network

Device IP: 172.16.1.100

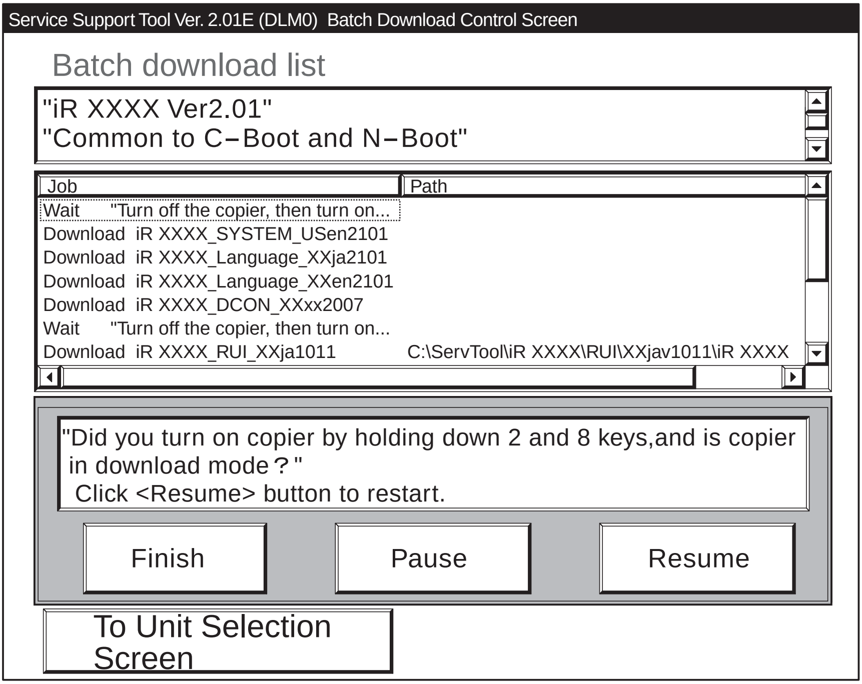
Confirm firmware versions

● Same Ver:Skip/Ver down:Confirm

○ Confirm ○ Overwrite

F-16-46

B-6) See that the download mode to be used is indicated.
When the mode has started, click [Resume].


Service Support Tool Ver. 2.01E (DLM0) Batch Download Control Screen
Batch download list

"iR XXXX Ver2.01"
"Common to C−Boot and N−Boot"

Job	Path
Wait "Turn off the copier, then turn on...	
Download iR XXXX_SYSTEM_USen2101	
Download iR XXXX_Language_XXja2101	
Download iR XXXX_Language_XXen2101	
Download iR XXXX_DCON_XXxx2007	
Wait "Turn off the copier, then turn on...	
Download iR XXXX_RUI_XXja1011	C:\ServTool\iR XXXX\RUI\XXjav1011\iR XXXX

"Did you turn on copier by holding down 2 and 8 keys,and is copier in download mode？"
Click <Resume> button to restart.

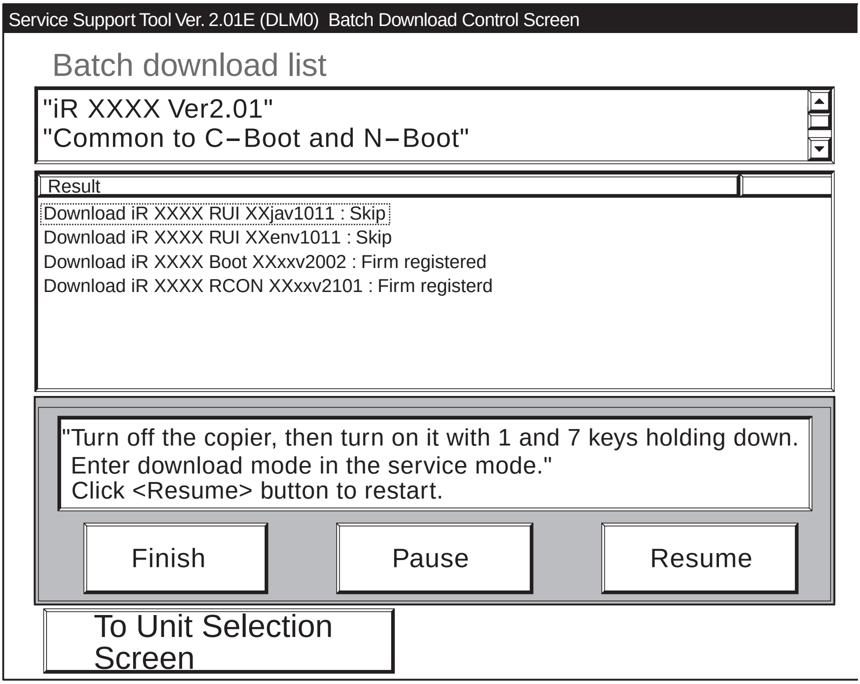
Finish
Pause
Resume
To Unit Selection Screen

F-16-47

B-7) See that the system software that has been registered is downloaded one after another. The System will show the progress (results) of downloading.

⚠

As necessary, e.g., when re-start is needed, an appropriate message will be indicated during a downloading session. In response, follow the instructions, and click [resume].


Service Support Tool Ver. 2.01E (DLM0) Batch Download Control Screen
Batch download list
Result
Finish
Pause
Resume
To Unit Selection Screen

"iR XXXX Ver2.01"
"Common to C–Boot and N–Boot"

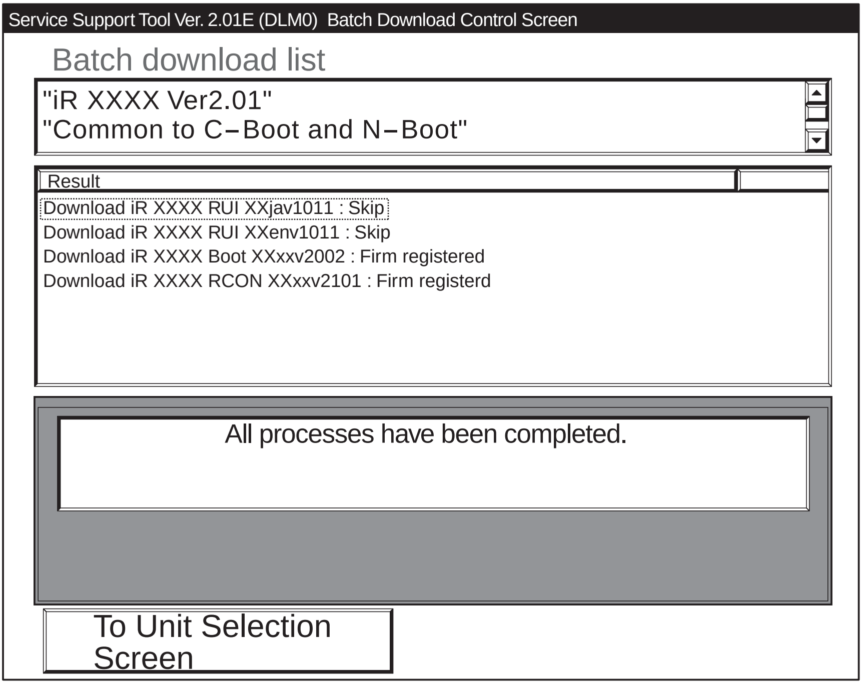
Download iR XXXX RUI XXjav1011 : Skip
Download iR XXXX RUI XXenv1011 : Skip
Download iR XXXX Boot XXxxv2002 : Firm registered
Download iR XXXX RCON XXxxv2101 : Firm registerd

"Turn off the copier, then turn on it with 1 and 7 keys holding down.
Enter download mode in the service mode."
Click <Resume> button to restart.

F-16-48

B-8) Follow the instructions given by the SST to download the RUI and RCON files as done in the previous step.

B-9) See the results of downloading; then, click [return to unit selection screen].



Service Support Tool Ver. 2.01E (DLM0) Batch Download Control Screen

Batch download list

"iR XXXX Ver2.01"
"Common to C−Boot and N−Boot"

Result

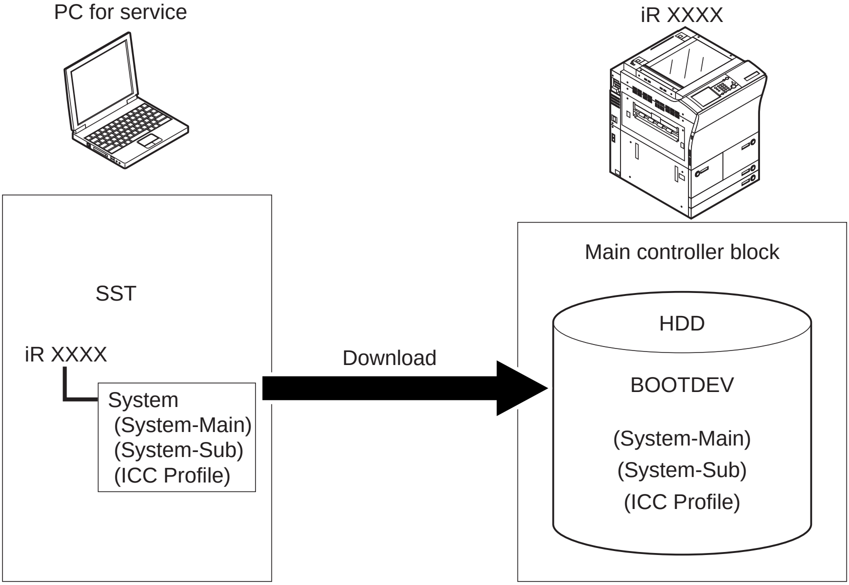
```
Download iR XXXX RUI XXjav1011 : Skip
Download iR XXXX RUI XXenv1011 : Skip
Download iR XXXX Boot XXxxv2002 : Firm registered
Download iR XXXX RCON XXxxv2101 : Firm registerd
```

All processes have been completed.

F-16-49

16.4.2 Downloading the System Software

16.4.2.1 Outline


PC for service
iR XXXX
SST
iR XXXX
System
(System-Main)
(System-Sub)
(ICC Profile)
Download
Main controller block
HDD
BOOTDEV
(System-Main)
(System-Sub)
(ICC Profile)

F-16-50

The system software comes in 3 types.(2 types for Japan)

⚠ In the case of Japan, appropriate model must be selected with reference to the presence/absence of support for NetWare.

T-16-5

Country	SST installation model	NetWare	Remarks
100V	iRC6800	Not supported	Installed at time of shipment to iRC6800 (100V)
	iRC6800N	Supported	Installed at time of shipment to iRC6800N(100V)

Country	SST installation model	NetWare	Remarks
120/230V	iRC6800	Supported	Installed at time of shipment to iR6800 (120/230V)/6800N(120/230V)

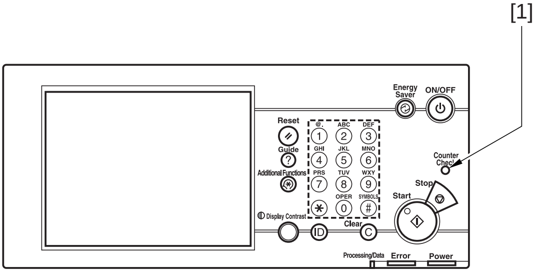
The machine's System software consists of multiple files.
The SST handles these files in group, and transfers them in succession at time of downloading.

T-16-6

Notation	Function
System-Main	Program for main CPU
System-Sub	Program for sub CPU
ICC Profile	color correction information file for PDL functions

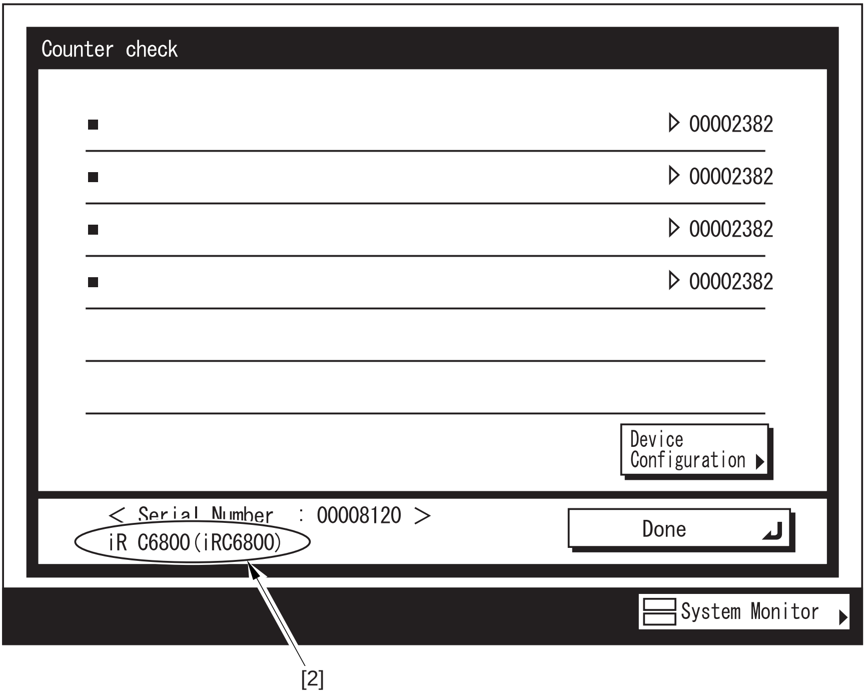
16.4.2.2 Downloading Procedure

Making a Check Work (Jpn only)
Press the Counter Check key [1] on the control panel to check the model name [2] indicated on the LCD.


[1]
Energy Saver
ON/OFF
Reset
Guide
Additional Functions
@.
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY
OPER
SYMBOLS
Counter Check
Stop
Start
Display Contrast
Clear
Processing/Data
Error
Power

F-16-51

⚠ When checking the model name, see the indication in parentheses.



Counter check

■ ▷ 00002382

■ ▷ 00002382

■ ▷ 00002382

■ ▷ 00002382

< Serial Number : 00008120 >

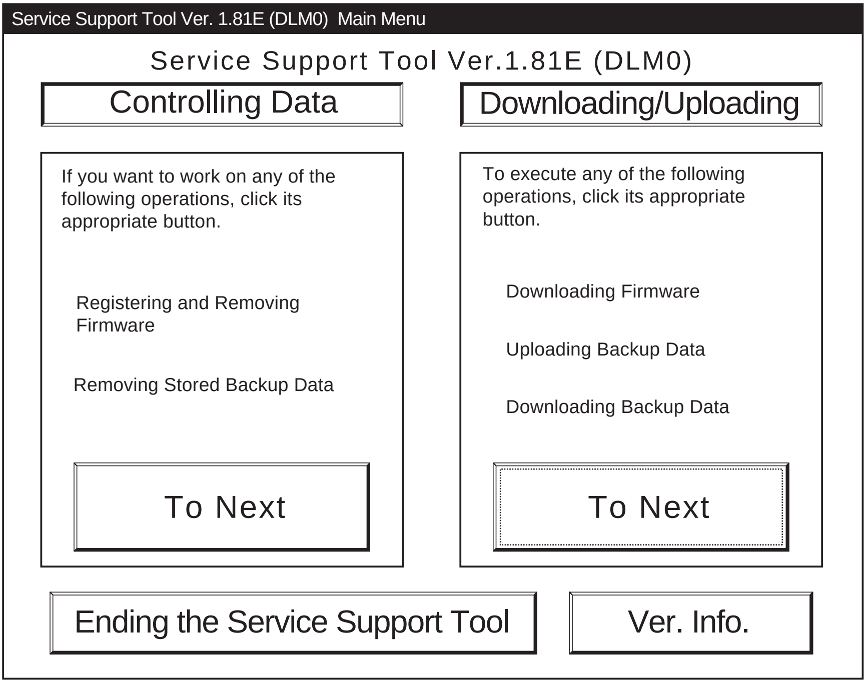
iR C6800(iRC6800)

Device Configuration
Done
System Monitor
[2]

F-16-52

[Procedure]

1) Click [To Next] under Downloading/Uploading.



Service Support Tool Ver. 1.81E (DLM0) Main Menu
Service Support Tool Ver.1.81E (DLM0)
Controlling Data
Downloading/Uploading

If you want to work on any of the following operations, click its appropriate button.

Registering and Removing Firmware

Removing Stored Backup Data

To execute any of the following operations, click its appropriate button.

Downloading Firmware

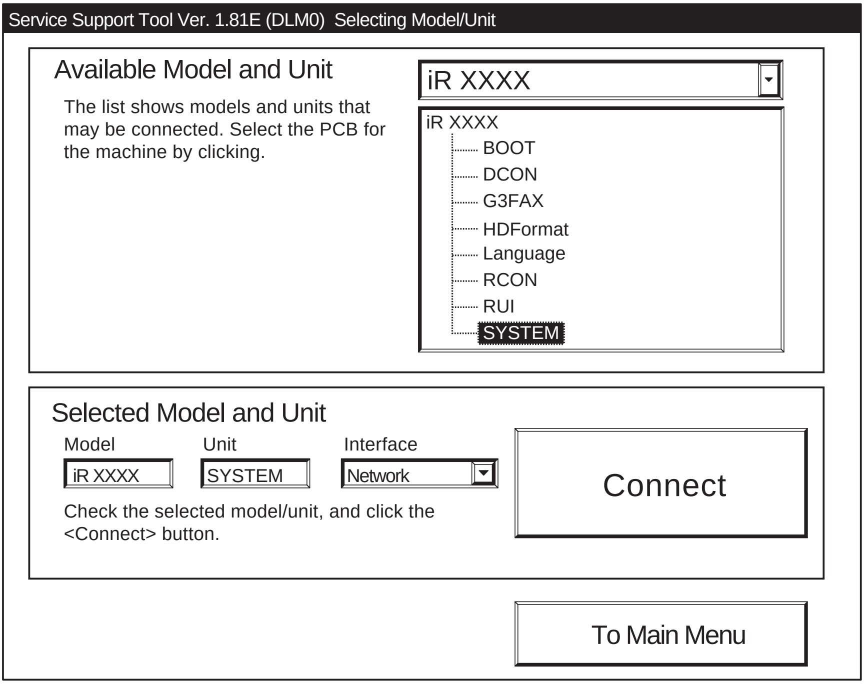
Uploading Backup Data

Downloading Backup Data

To Next
To Next
Ending the Service Support Tool
Ver. Info.

F-16-53

2) Select the SYSTEM of the iRC6800, and click [Connect].



Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iR XXXX

- iR XXXX
  - BOOT
  - DCON
  - G3FAX
  - HDFormat
  - Language
  - RCON
  - RUI
  - SYSTEM

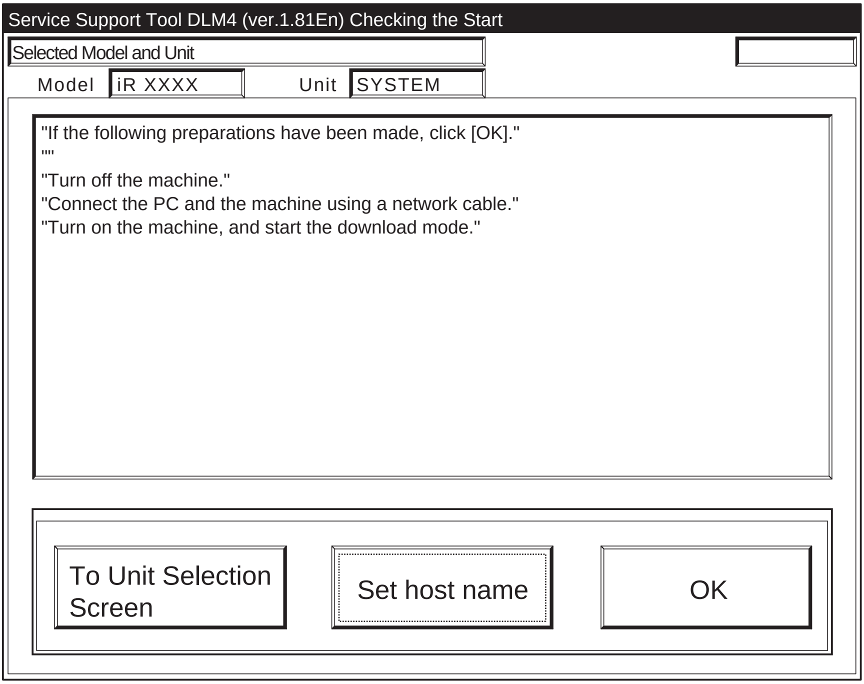
Selected Model and Unit

Model: iR XXXX
Unit: SYSTEM
Interface: Network

Check the selected model/unit, and click the <Connect> button.

F-16-54

3) Click [Set host name].


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Model
Unit
To Unit Selection Screen
Set host name
OK

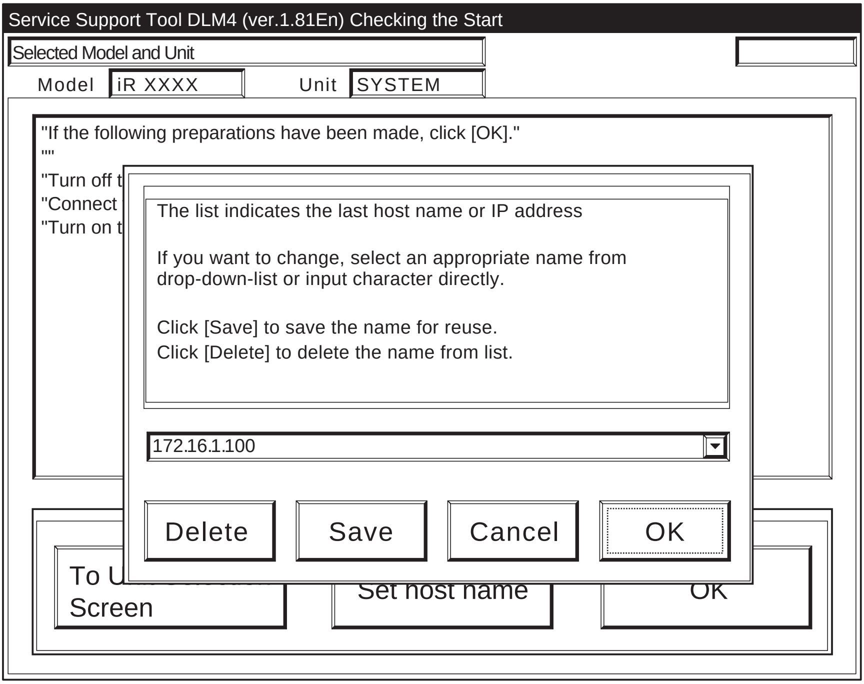
iR XXXX

SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-55

4) The machine's IP address is entered automatically; click [OK].



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Model: iR XXXX

Unit: SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off t
"Connect
"Turn on t

The list indicates the last host name or IP address

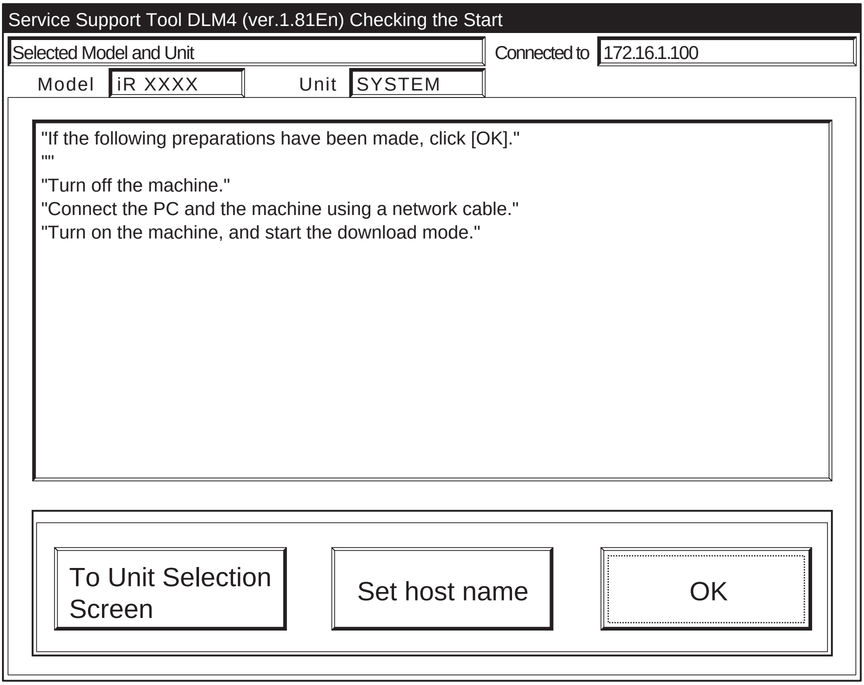
If you want to change, select an appropriate name from drop-down-list or input character directly.

Click [Save] to save the name for reuse.
Click [Delete] to delete the name from list.

172.16.1.100

F-16-56

5) Click [OK] to start connection.



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Connected to 172.16.1.100

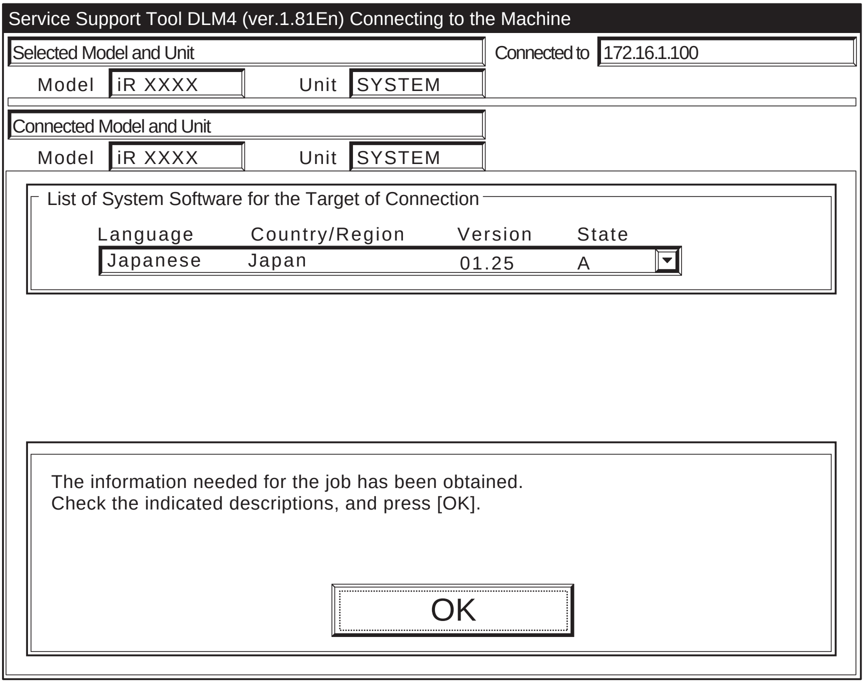
Model iR XXXX

Unit SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-57

6) When the machine has made a connection and brings up the following screen, click [OK].


Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine

Selected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX
Unit: SYSTEM

Connected Model and Unit

Model: iR XXXX
Unit: SYSTEM

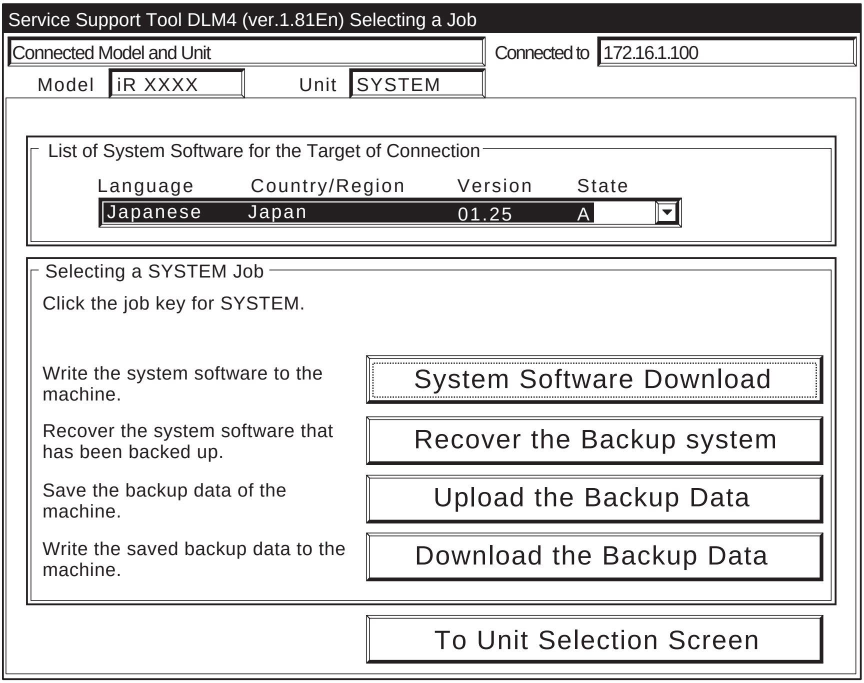
List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-58

7) Click [System Software Download].



Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

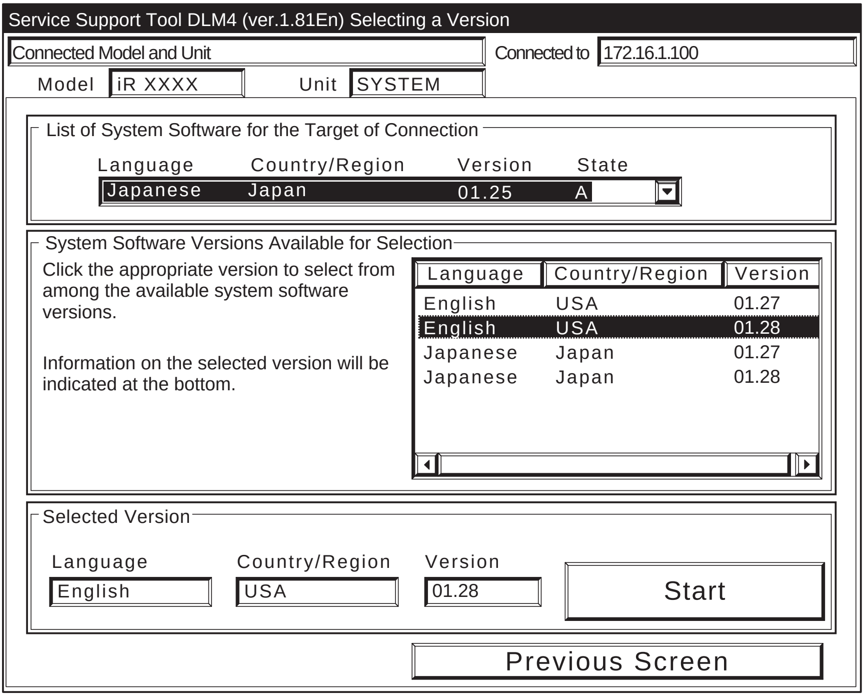
Selecting a SYSTEM Job

Click the job key for SYSTEM.

Write the system software to the machine.	System Software Download
Recover the system software that has been backed up.	Recover the Backup system
Save the backup data of the machine.	Upload the Backup Data
Write the saved backup data to the machine.	Download the Backup Data

F-16-59

8) Select the version to download, and click [Start].


Service Support Tool DLM4 (ver.1.81En) Selecting a Version
Connected Model and Unit
List of System Software for the Target of Connection
System Software Versions Available for Selection
Selected Version
Start
Previous Screen

Connected to 172.16.1.100

Model iR XXXX

Unit SYSTEM

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Click the appropriate version to select from among the available system software versions.

Information on the selected version will be indicated at the bottom.

Language	Country/Region	Version
English	USA	01.27
English	USA	01.28
Japanese	Japan	01.27
Japanese	Japan	01.28

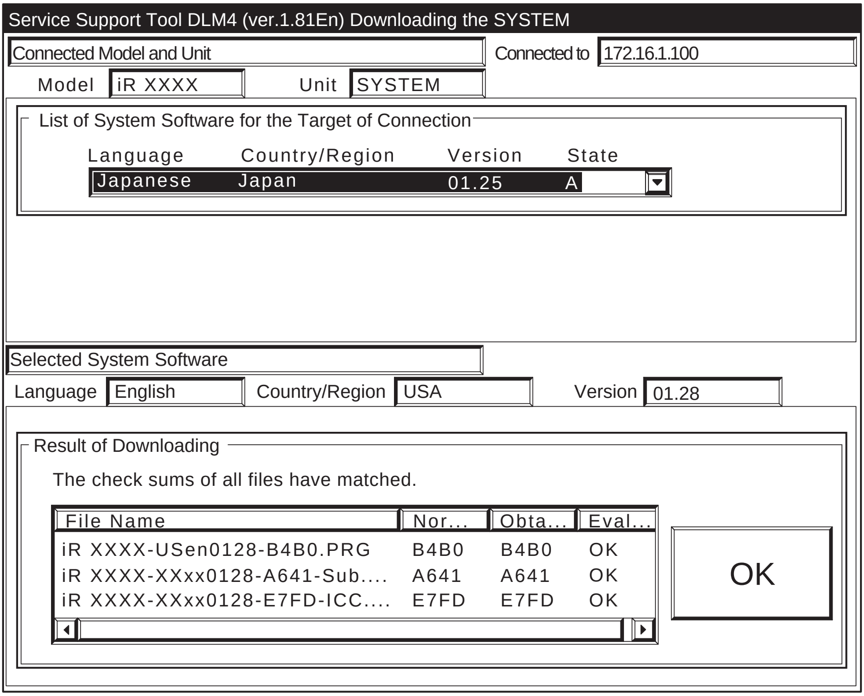
Language English

Country/Region USA

Version 01.28

F-16-60

9) When the results of the downloading are indicated, and click [OK].



Service Support Tool DLM4 (ver.1.81En) Downloading the SYSTEM

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Selected System Software

Language: English

Country/Region: USA

Version: 01.28

Result of Downloading

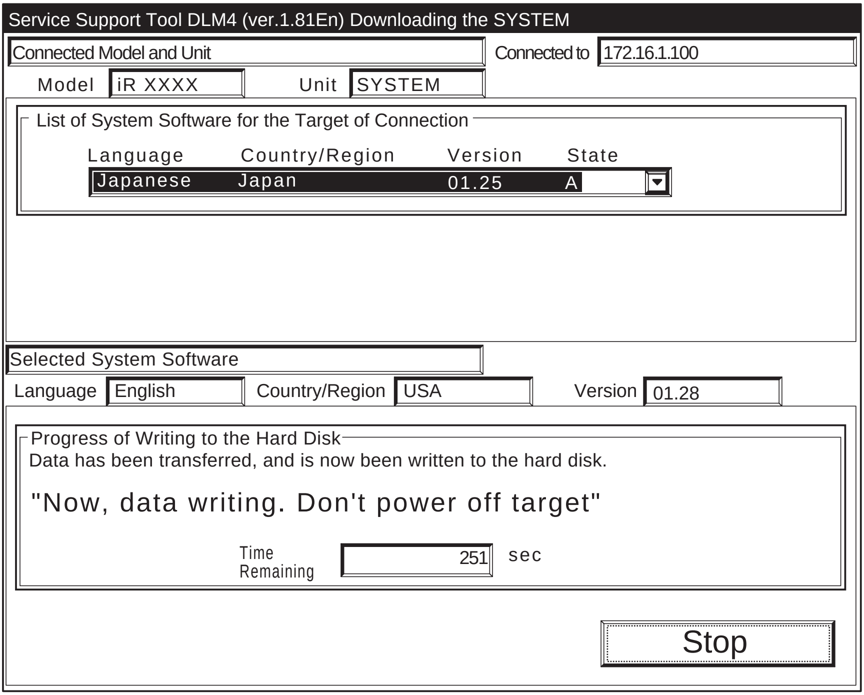
The check sums of all files have matched.

File Name	Nor...	Obta...	Eval...
iR XXXX-USen0128-B4B0.PRG	B4B0	B4B0	OK
iR XXXX-XXxx0128-A641-Sub....	A641	A641	OK
iR XXXX-XXxx0128-E7FD-ICC....	E7FD	E7FD	OK

F-16-61

10) Click [To Unit Selection Screen].

Never turn off the machine while the following screen is shown.
Otherwise writing to the HDD will be suspended, preventing the machine to start up.



Service Support Tool DLM4 (ver.1.81En) Downloading the SYSTEM

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Selected System Software

Language: English

Country/Region: USA

Version: 01.28

Progress of Writing to the Hard Disk

Data has been transferred, and is now been written to the hard disk.

"Now, data writing. Don't power off target"

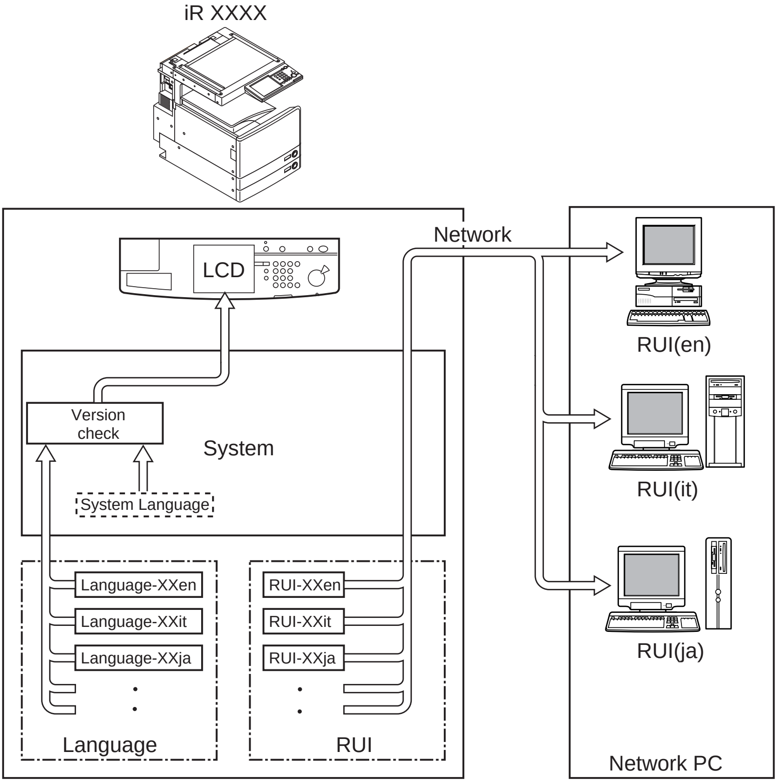
Time Remaining: 251 sec

F-16-62

If the machine fails to start up, execute foramtting BOOTDEV using HDForamt and download the following:
System, Language, RUI

16.4.3 Downloading the RUI, and Language Module

16.4.3.1 Outline


iR XXXX
Network
LCD
Version check
System
System Language
Language-XXen
Language-XXit
Language-XXja
Language
RUI-XXen
RUI-XXit
RUI-XXja
RUI
RUI(en)
RUI(it)
RUI(ja)
Network PC

F-16-63

T-16-7

Language used on control panel LCD

Check the versions of system software and language files.

1) if the versions are correct
   Selections may be made in Additional Function;
   Common settings>Language Switch

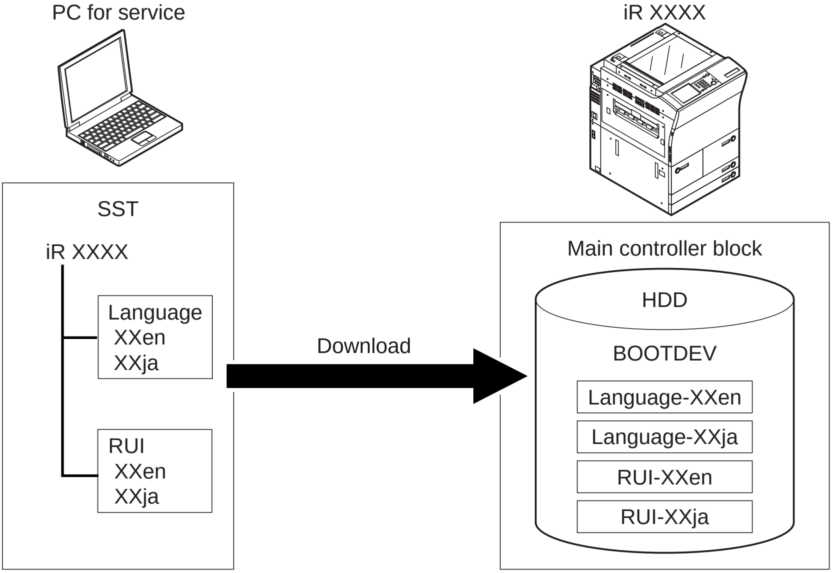
2) if the versions are not correct
   'E744' will be indicated.
   Turn off and then on the main power switch so that the
   system language will be used.

T-16-8

Language used in RUI

Select on the RUI.
A specific language may be selected for a specific PC.

<Language Code>	<Language>
de	German
en	English
fr	French
it	Italian
ja	Japanese


PC for service
iR XXXX
SST
iR XXXX
Language
XXen
XXja
RUI
XXen
XXja
Download
Main controller block
HDD
BOOTDEV
Language-XXen
Language-XXja
RUI-XXen
RUI-XXja

F-16-64

16.4.3.2 Downloading Procedure

[Procedure]

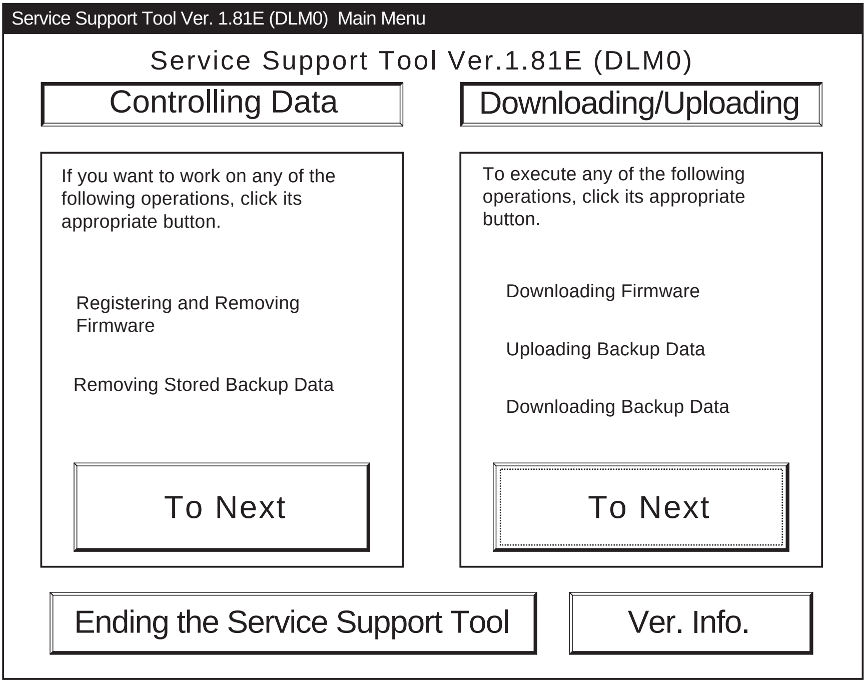
Downloading may take place when the machine is in normal or in safe mode.

Both Language and RUI files mey be downloaded in common among models.

(here,the iRC6800 is selected)

[describes downloading of the Language]

1) Click [To next] under Downloading/Uploading.



Service Support Tool Ver. 1.81E (DLM0) Main Menu

Service Support Tool Ver.1.81E (DLM0)

Controlling Data
Downloading/Uploading

If you want to work on any of the following operations, click its appropriate button.

Registering and Removing Firmware

Removing Stored Backup Data

To execute any of the following operations, click its appropriate button.

Downloading Firmware

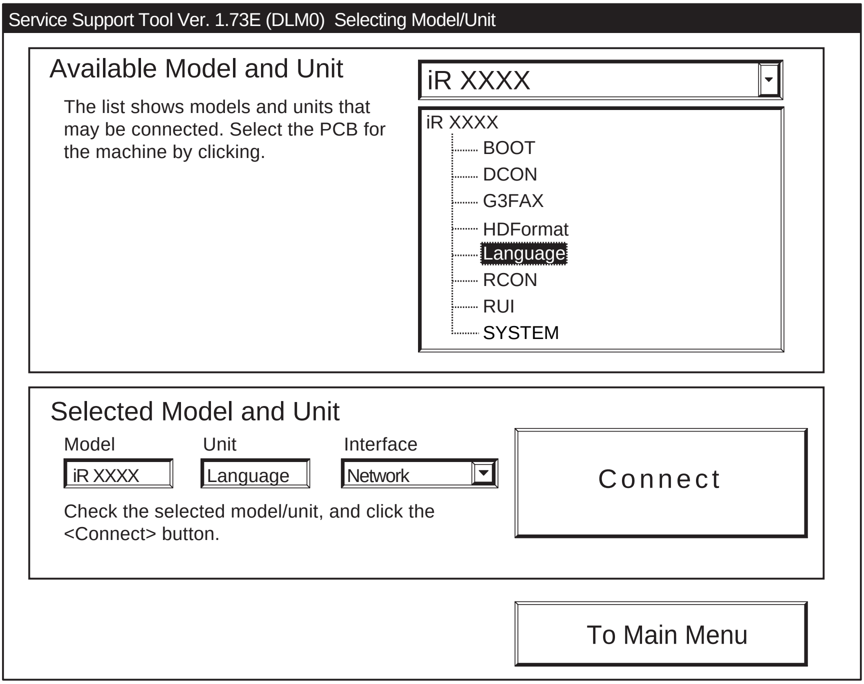
Uploading Backup Data

Downloading Backup Data

To Next
To Next
Ending the Service Support Tool
Ver. Info.

F-16-65

2) Select [Language] for the iRC6800, and click [Connect].



Service Support Tool Ver. 1.73E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iR XXXX
iR XXXX
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
SYSTEM

Selected Model and Unit

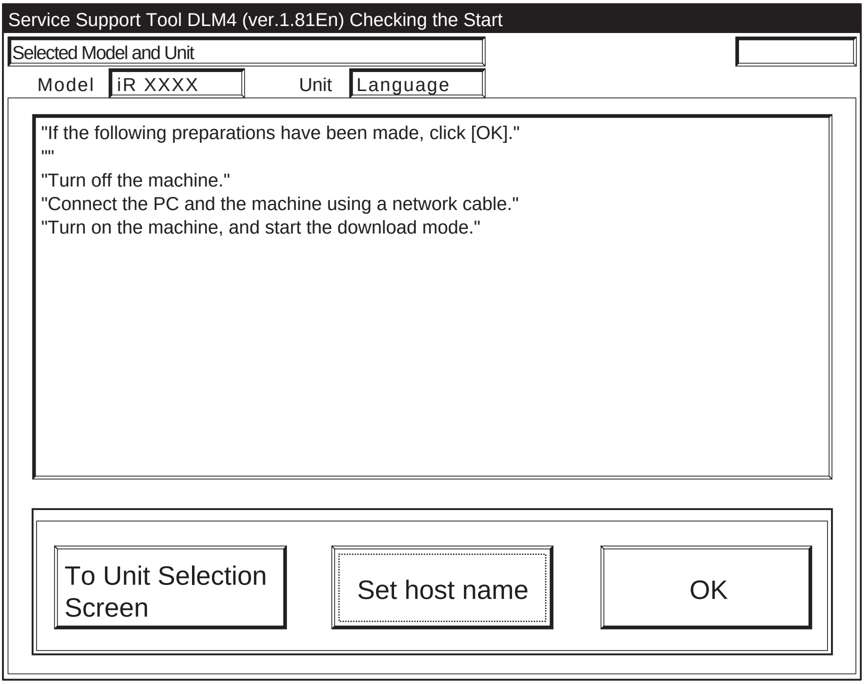
Model: iR XXXX
Unit: Language
Interface: Network

Check the selected model/unit, and click the <Connect> button.

Connect
To Main Menu

F-16-66

3) Click [Set host name].



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

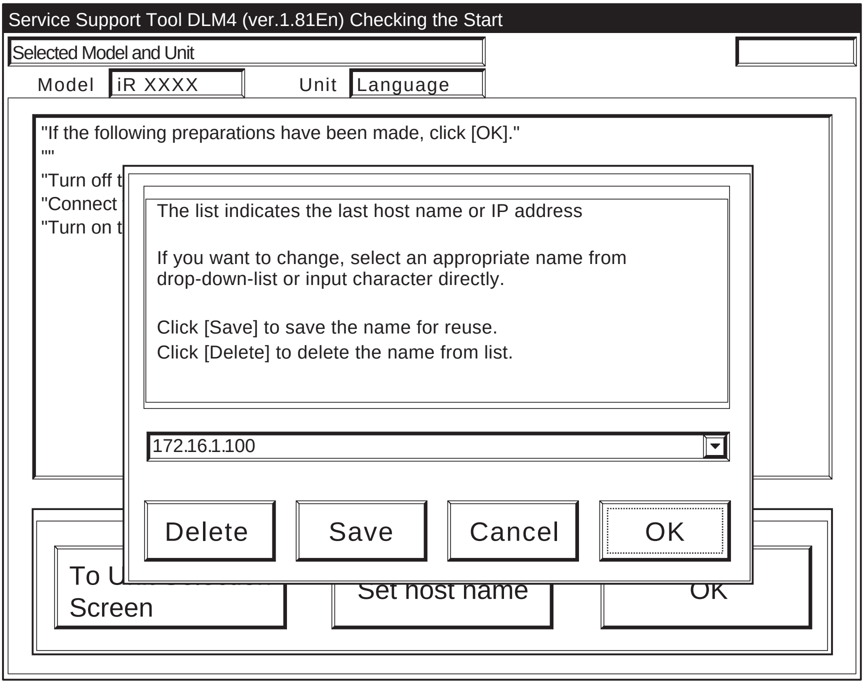
Model iR XXXX Unit Language

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

To Unit Selection Screen
Set host name
OK

F-16-67

4) The machiine's IP address is entered automatically; click [OK].


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Model
Unit
Delete
Save
Cancel
OK
To U
Screen
Set host name
OK

Model: iR XXXX

Unit: Language

"If the following preparations have been made, click [OK]."
""
"Turn off t
"Connect
"Turn on t

The list indicates the last host name or IP address

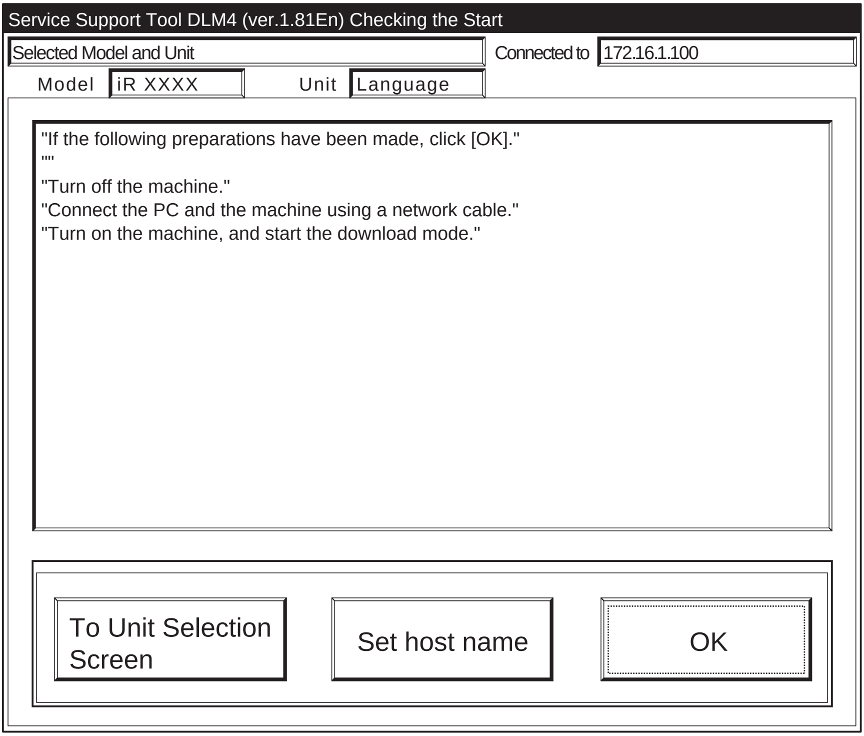
If you want to change, select an appropriate name from drop-down-list or input character directly.

Click [Save] to save the name for reuse.
Click [Delete] to delete the name from list.

172.16.1.100

F-16-68

5) Click [OK] to start conncection.



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Connected to 172.16.1.100

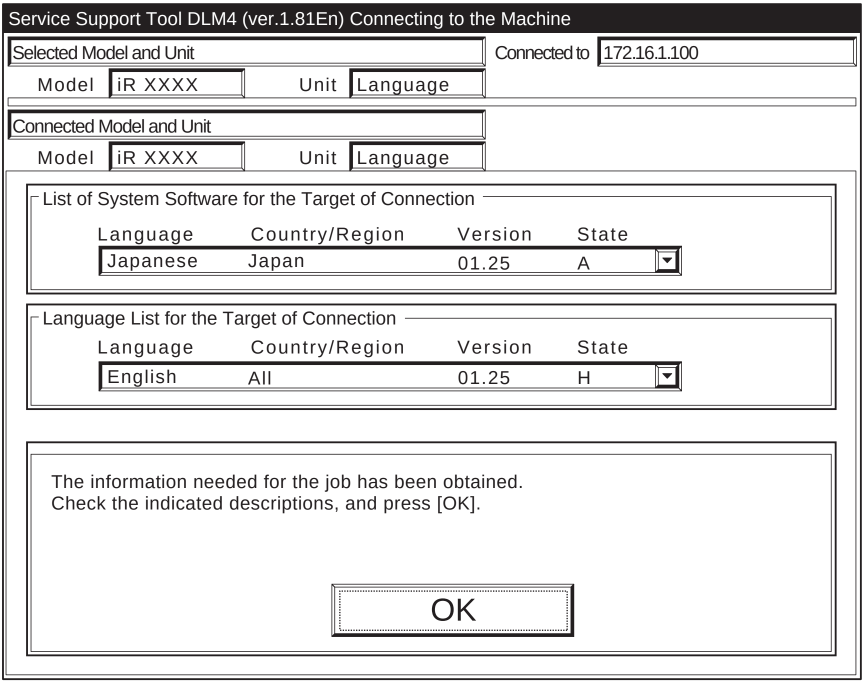
Model iR XXXX

Unit Language

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-69

6) When the machine has made a connection and bring up the following screen, click [OK].


Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine
Selected Model and Unit
Connected to
Model
Unit
Connected Model and Unit
Model
Unit
List of System Software for the Target of Connection
Language Country/Region Version State
Language List for the Target of Connection
Language Country/Region Version State
OK

Connected to 172.16.1.100

Selected Model and Unit: Model iR XXXX, Unit Language

Connected Model and Unit: Model iR XXXX, Unit Language

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

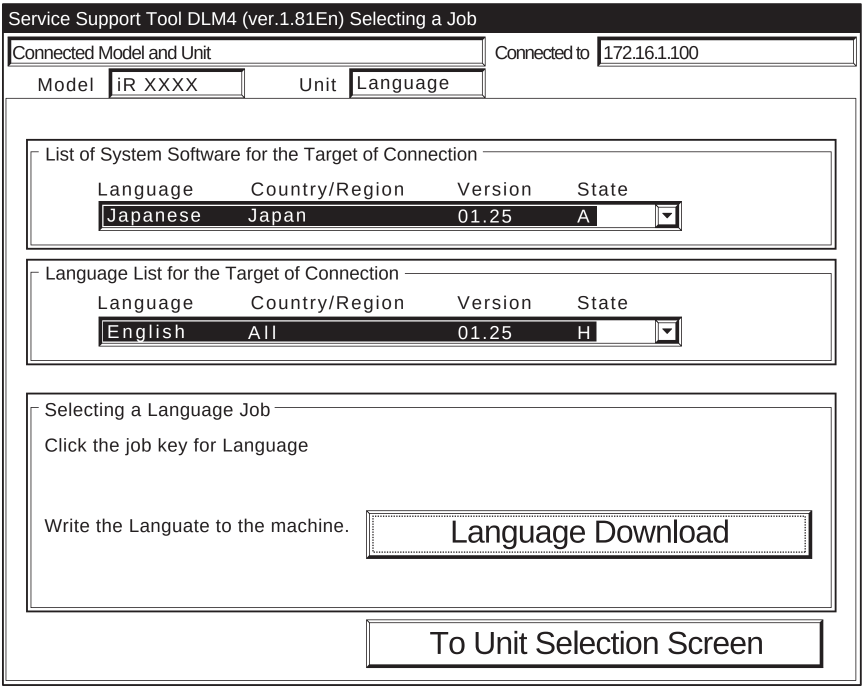
Language List for the Target of Connection

Language	Country/Region	Version	State
English	All	01.25	H

The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-70

7) Click [Language Download].



Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit Language

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Language List for the Target of Connection

Language	Country/Region	Version	State
English	All	01.25	H

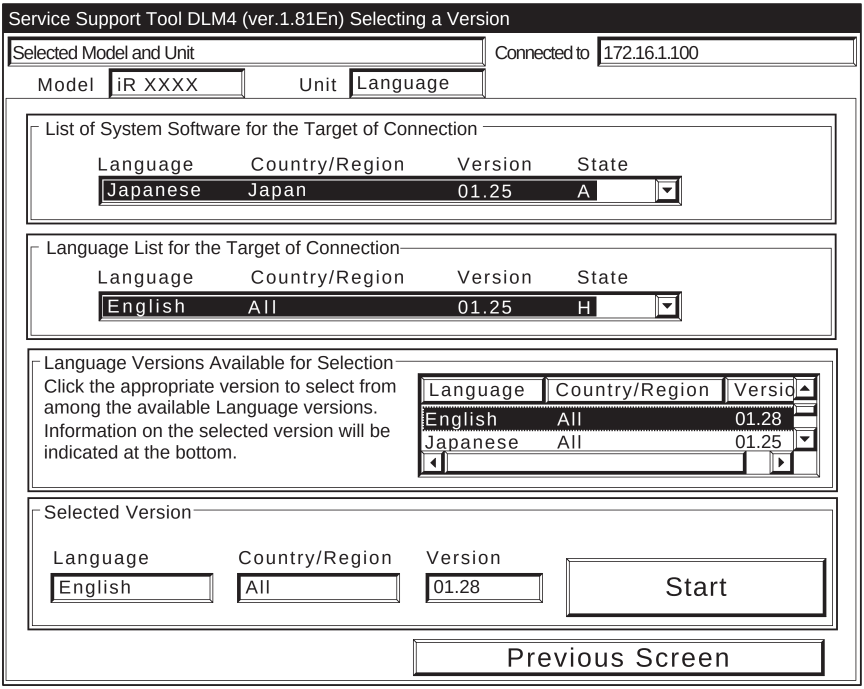
Selecting a Language Job

Click the job key for Language

Write the Languate to the machine.

F-16-71

8) Select the version to download, and click [Start].


Service Support Tool DLM4 (ver.1.81En) Selecting a Version

Selected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit Language

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Language List for the Target of Connection

Language	Country/Region	Version	State
English	All	01.25	H

Language Versions Available for Selection

Click the appropriate version to select from among the available Language versions. Information on the selected version will be indicated at the bottom.

Language	Country/Region	Versio
English	All	01.28
Japanese	All	01.25

Selected Version

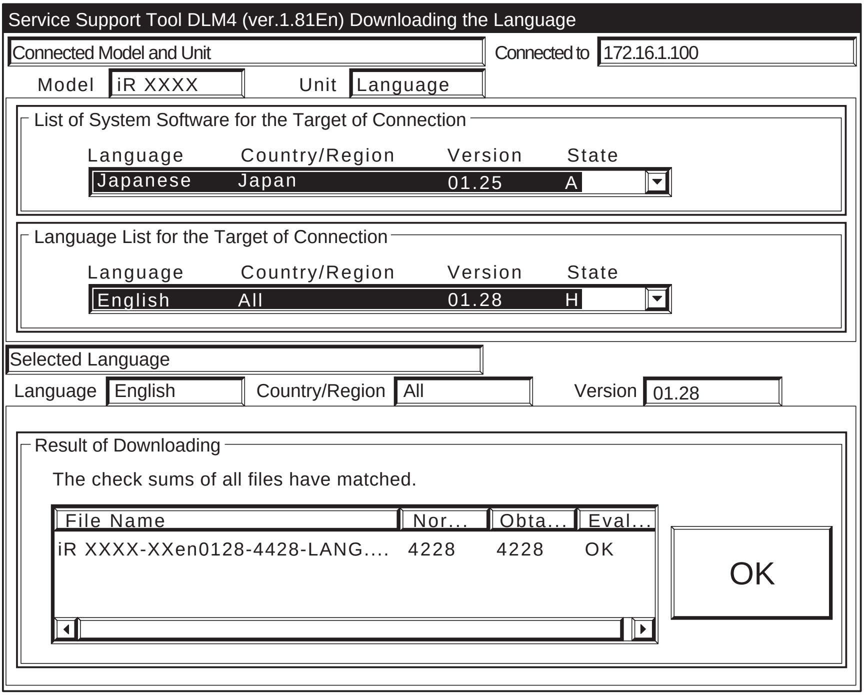
Language: English

Country/Region: All

Version: 01.28

F-16-72

9) When the results of the downloading are indicated. click [OK].


Service Support Tool DLM4 (ver.1.81En) Downloading the Language

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit Language

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Language List for the Target of Connection

Language	Country/Region	Version	State
English	All	01.28	H

Selected Language

Language English

Country/Region All

Version 01.28

Result of Downloading

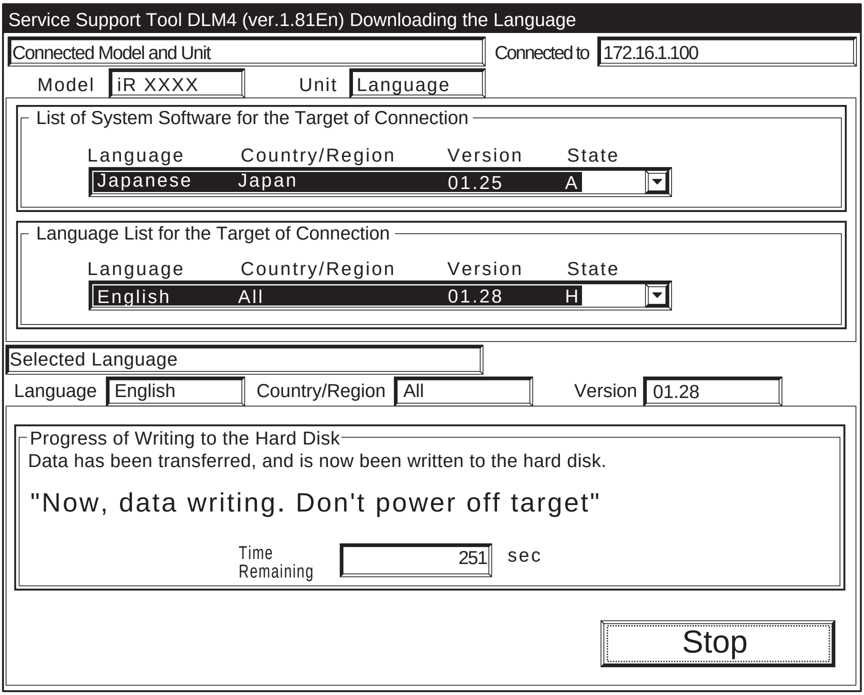
The check sums of all files have matched.

File Name	Nor...	Obta...	Eval...
iR XXXX-XXen0128-4428-LANG....	4228	4228	OK

F-16-73

10) Click [To Unit Selection Screen].

Never turn off the machine while the following screen is shown.
Otherwise writing to the HDD will be suspended, preventing the machine to start up.


Service Support Tool DLM4 (ver.1.81En) Downloading the Language

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit Language

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Language List for the Target of Connection

Language	Country/Region	Version	State
English	All	01.28	H

Selected Language

Language English

Country/Region All

Version 01.28

Progress of Writing to the Hard Disk

Data has been transferred, and is now been written to the hard disk.

"Now, data writing. Don't power off target"

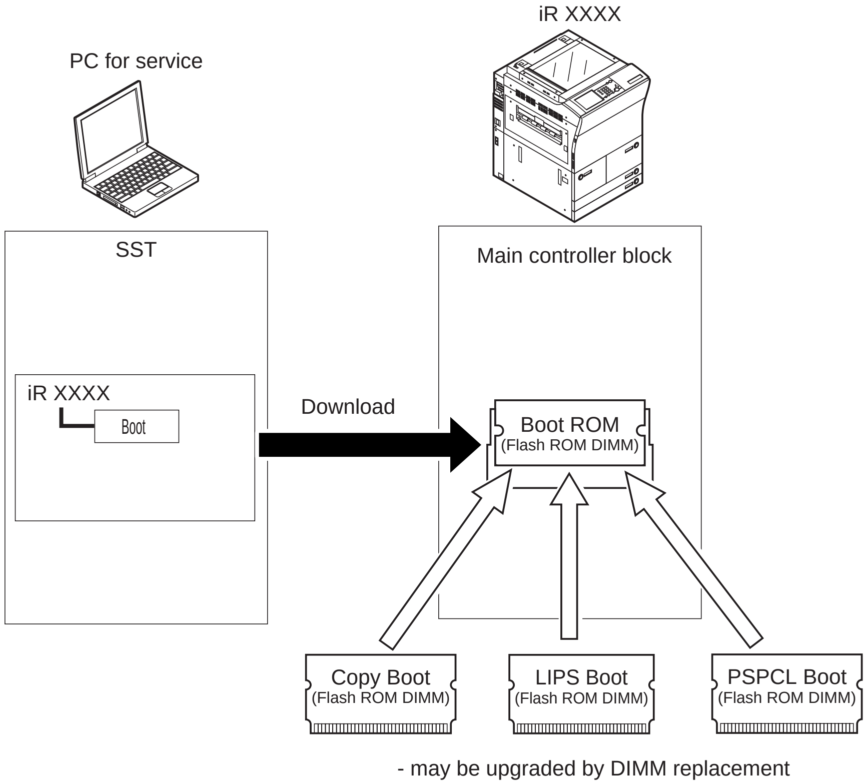
Time Remaining 251 sec

F-16-74

If the machine fails to start up, execute foramtting BOOTDEV using HDForamt and download the following:
System, Language, RUI

16.4.4 Downloading the BOOT Software

16.4.4.1 Outline


iR XXXX
PC for service
SST
Main controller block
iR XXXX
Boot
Download
Boot ROM
(Flash ROM DIMM)
Copy Boot
(Flash ROM DIMM)
LIPS Boot
(Flash ROM DIMM)
PSPCL Boot
(Flash ROM DIMM)
- may be upgraded by DIMM replacement

F-16-75

There are as many as three types of Boot:
- COPY Boot (100/120/230V model)
- LIPS Boot (100V model)
- PAPCL Boot (120/230V model)

If you are upgrading using a downloading function, be sure to select "iRC6800" as the model name regardless of the type of Boot that is installed. There is no need to change the model name to suit the type of Boot.

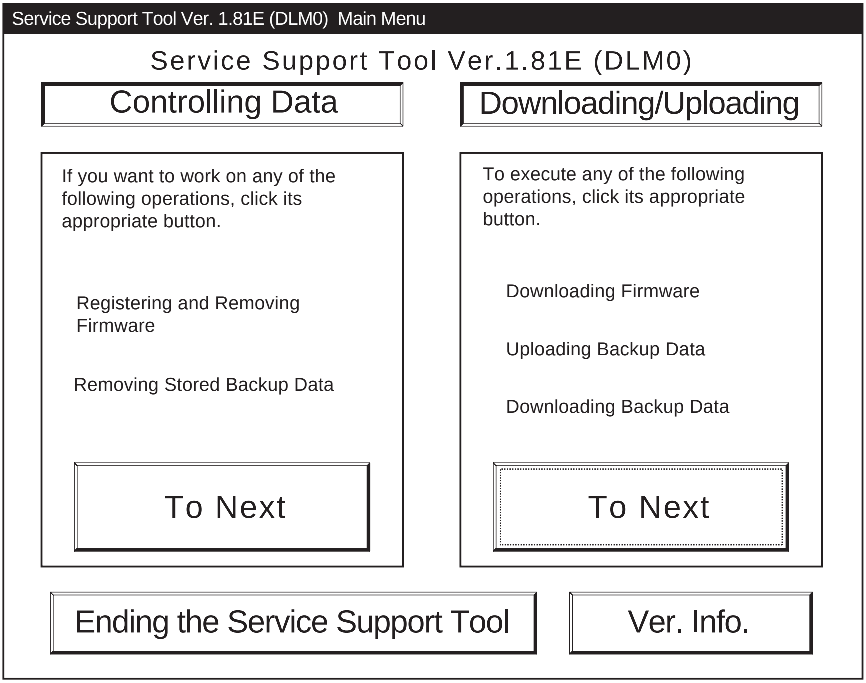
⚠

-If you fail to downloading files, you must replace the boot ROM.

16.4.4.2 Downloading Procedure

Downloading may take place in normal mode (1+7 on keypad) or in safe mode (2+8 on keypad).

1) Click [To next] under Downloading/Uploading.

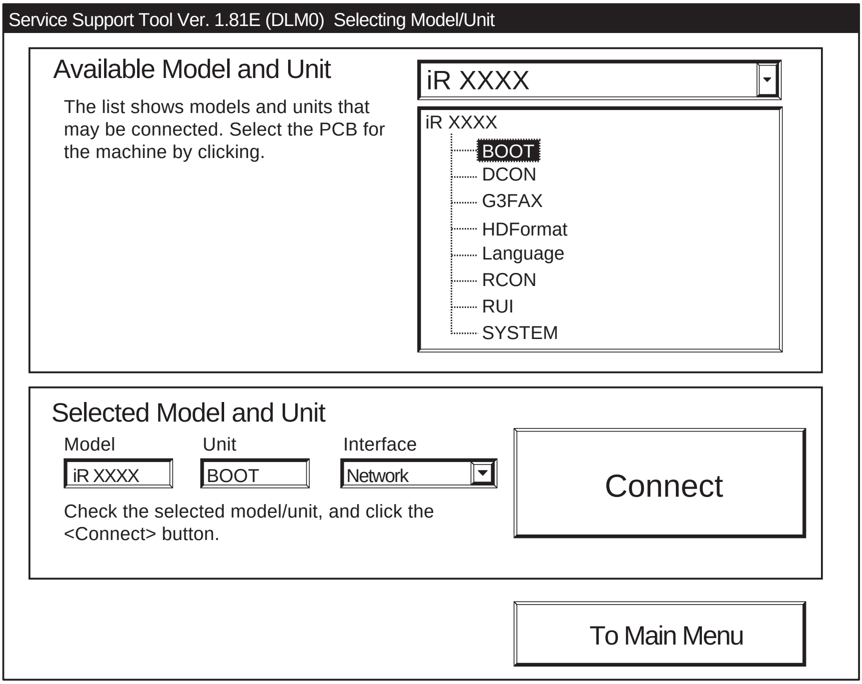

Service Support Tool Ver. 1.81E (DLM0) Main Menu
Service Support Tool Ver.1.81E (DLM0)
Controlling Data
Downloading/Uploading
Registering and Removing Firmware
Removing Stored Backup Data
Downloading Firmware
Uploading Backup Data
Downloading Backup Data
To Next
To Next
Ending the Service Support Tool
Ver. Info.

If you want to work on any of the following operations, click its appropriate button.

To execute any of the following operations, click its appropriate button.

F-16-76

2) Select [BOOT] for the iRC6800 Series, and click [Connect].


Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iR XXXX
iR XXXX
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
SYSTEM

Selected Model and Unit

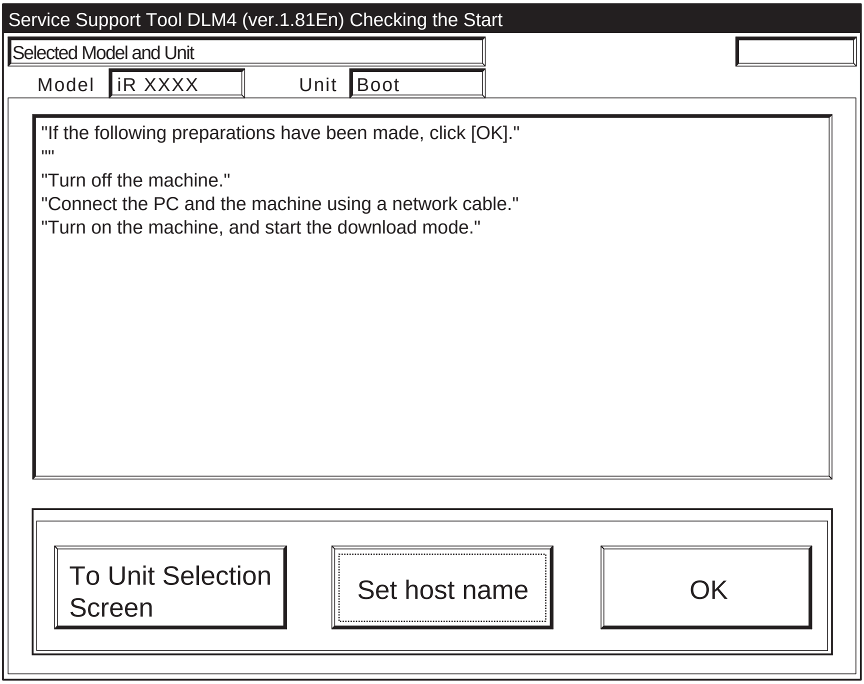
Model: iR XXXX
Unit: BOOT
Interface: Network

Check the selected model/unit, and click the <Connect> button.

Connect
To Main Menu

F-16-77

3) Click [Set host name].

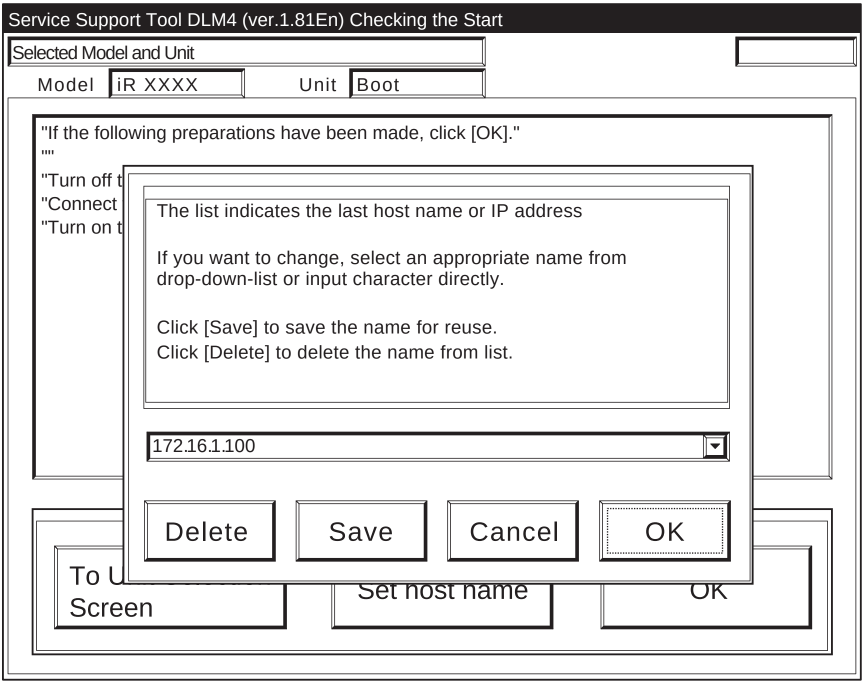

Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

Model iR XXXX Unit Boot

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-78

4) The machine's IP address is entered automatically; click [OK].


Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Model iR XXXX Unit Boot

"If the following preparations have been made, click [OK]."
""
"Turn off t
"Connect
"Turn on t

The list indicates the last host name or IP address

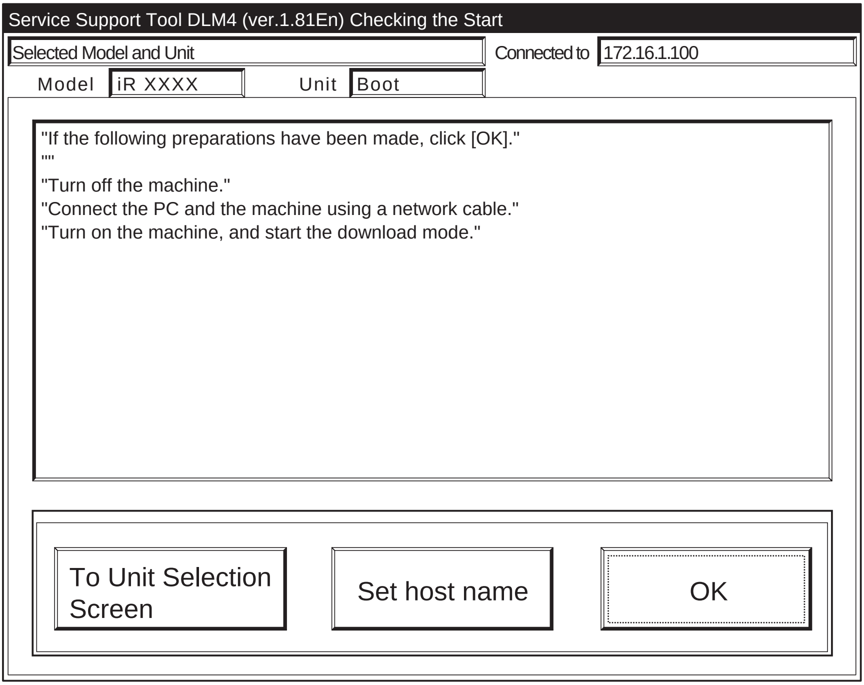
If you want to change, select an appropriate name from drop-down-list or input character directly.

Click [Save] to save the name for reuse.
Click [Delete] to delete the name from list.

172.16.1.100

F-16-79

5) Click [OK] to start connection.



Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Connected to
To Unit Selection Screen
Set host name
OK

Connected to 172.16.1.100

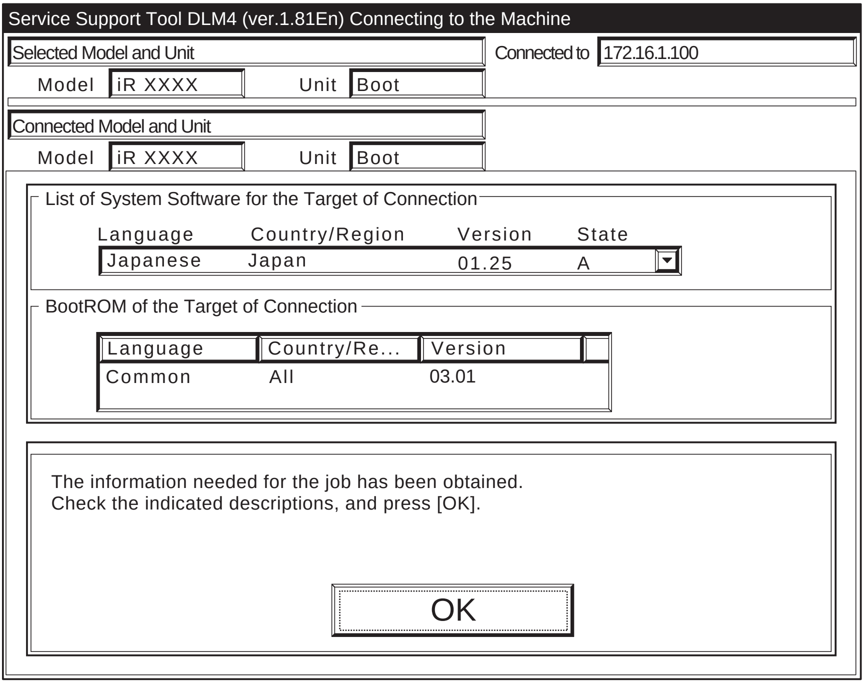
Model iR XXXX

Unit Boot

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-80

6) When the machine has made a connection and brings up the following screen, click [OK].



Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine

Selected Model and Unit

Model: iR XXXX

Unit: Boot

Connected to: 172.16.1.100

Connected Model and Unit

Model: iR XXXX

Unit: Boot

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

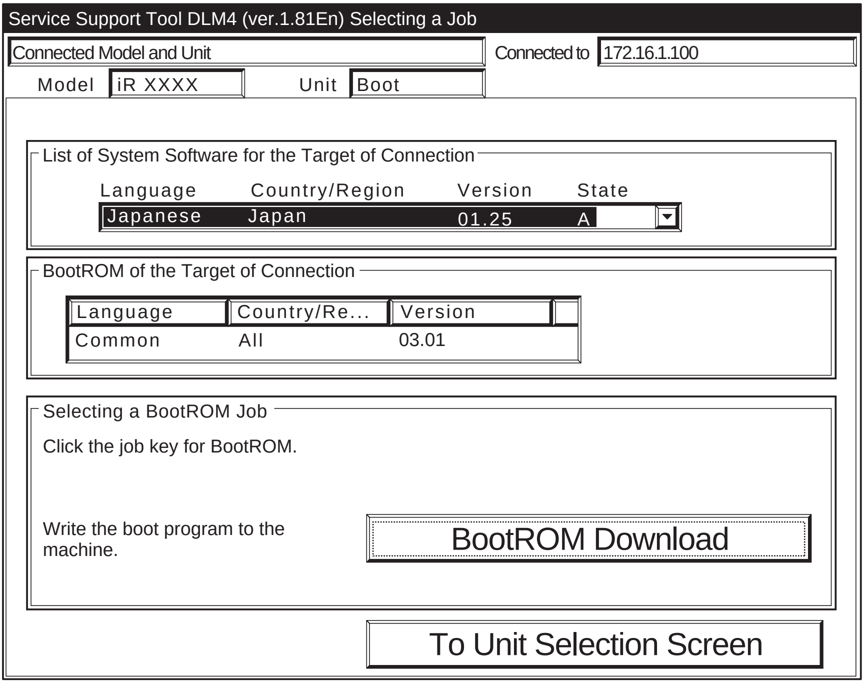
BootROM of the Target of Connection

Language	Country/Re...	Version
Common	All	03.01

The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-81

7) Click [BootROM Download].



Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit Boot

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

BootROM of the Target of Connection

Language	Country/Re...	Version
Common	All	03.01

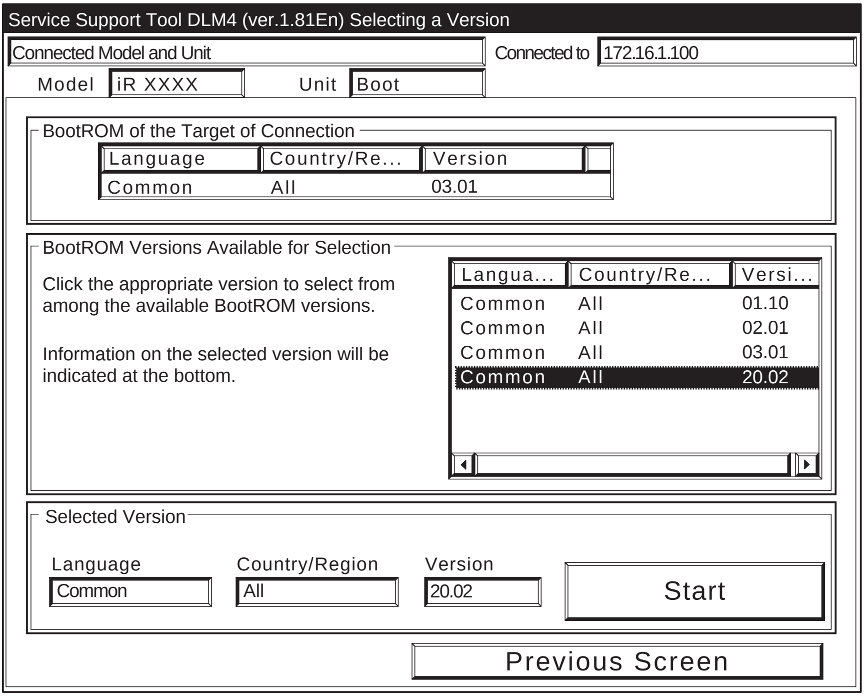
Selecting a BootROM Job

Click the job key for BootROM.

Write the boot program to the machine.

F-16-82

8) Select the version to download, and click [Start].



Service Support Tool DLM4 (ver.1.81En) Selecting a Version

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: Boot

BootROM of the Target of Connection

Language	Country/Re...	Version
Common	All	03.01

BootROM Versions Available for Selection

Click the appropriate version to select from among the available BootROM versions.

Information on the selected version will be indicated at the bottom.

Langua...	Country/Re...	Versi...
Common	All	01.10
Common	All	02.01
Common	All	03.01
Common	All	20.02

Selected Version

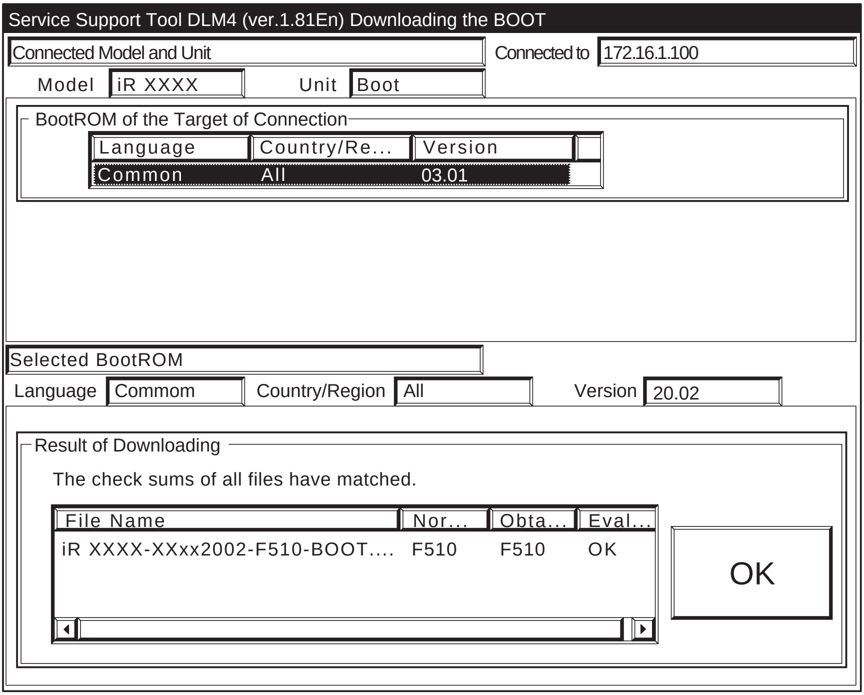
Language: Common

Country/Region: All

Version: 20.02

F-16-83

9) When the results of the downloading are indicated, and click [OK].



Service Support Tool DLM4 (ver.1.81En) Downloading the BOOT

Connected Model and Unit
Connected to 172.16.1.100
Model iR XXXX
Unit Boot

BootROM of the Target of Connection

Language	Country/Re...	Version
Common	All	03.01

Selected BootROM
Language Commom
Country/Region All
Version 20.02

Result of Downloading

The check sums of all files have matched.

File Name	Nor...	Obta...	Eval...
iR XXXX-XXxx2002-F510-BOOT....	F510	F510	OK

F-16-84

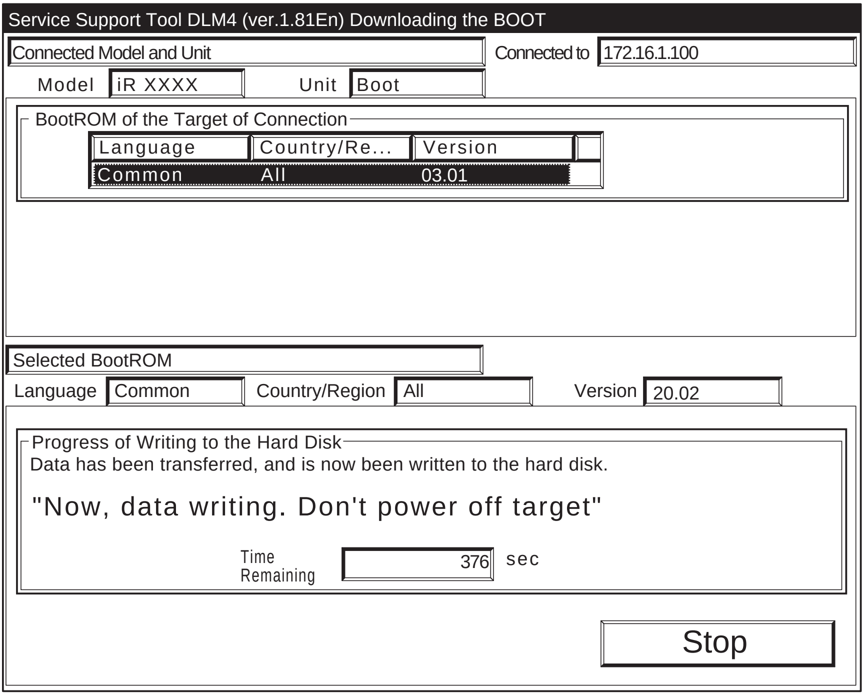
10) Click [To Unit Selection Screen].

[after Downloading]

When you upgrade the boot ROM, be sure to turn off and then on the machine's main power switch so that the new version will be validated.

Never turn off the machine while the following screen is shown.

Otherwise writing to the HDD will be suspended, preventing the machine to start up.



Service Support Tool DLM4 (ver.1.81En) Downloading the BOOT

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: Boot

BootROM of the Target of Connection

Language	Country/Re...	Version
Common	All	03.01

Selected BootROM

Language: Common

Country/Region: All

Version: 20.02

Progress of Writing to the Hard Disk

Data has been transferred, and is now been written to the hard disk.

"Now, data writing. Don't power off target"

Time Remaining: 376 sec

F-16-85

If the machine fails to start up, replace the boot ROM.

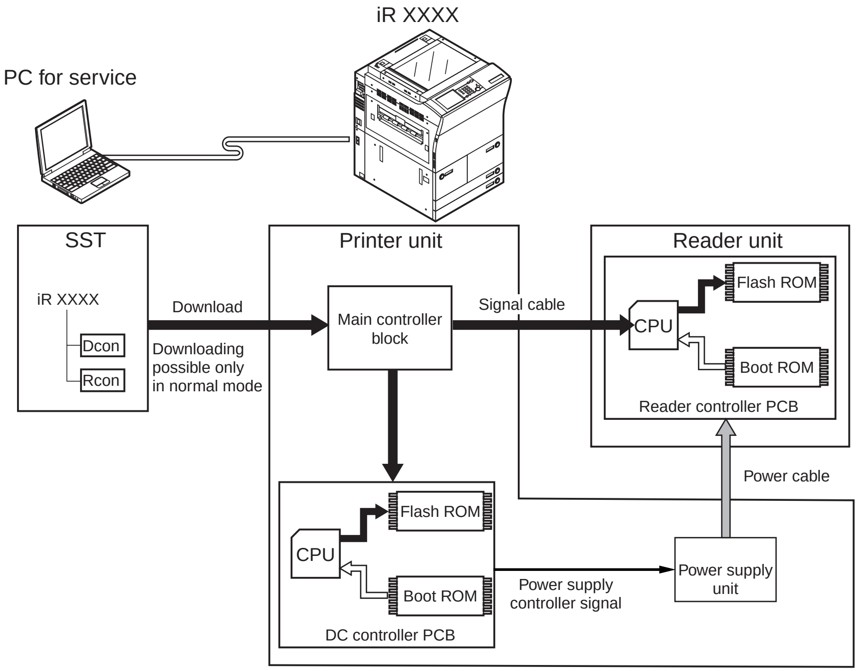
16.4.5 Downloading the Dcon and Rcon Software

16.4.5.1 Outline

The DC controller/Reader controller files are downloaded by way of the main controller block.

⚠

Both DC controller PCB and the Reader controller PCB are wquipped with booy ROMs, permitting retries if downloading fails.


iR XXXX
PC for service
SST
iR XXXX
Dcon
Rcon
Download
Downloading possible only in normal mode
Printer unit
Main controller block
Signal cable
Reader unit
CPU
Flash ROM
Boot ROM
Reader controller PCB
Power cable
CPU
Flash ROM
Boot ROM
DC controller PCB
Power supply controller signal
Power supply unit

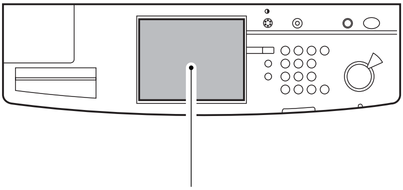
F-16-86

Unless the DC controller has started up normally, not permitting downloading of Reader controller files.

(Because the power supply control signal will not be validated, not supplying the reader unit with power.)

16.4.5.2 Downloading Procedure

[Making Checks in Advance]



- No error code must be indicated.
- In the case of downloading Rcon files, the version of DC-CON must be indicated in service mode.

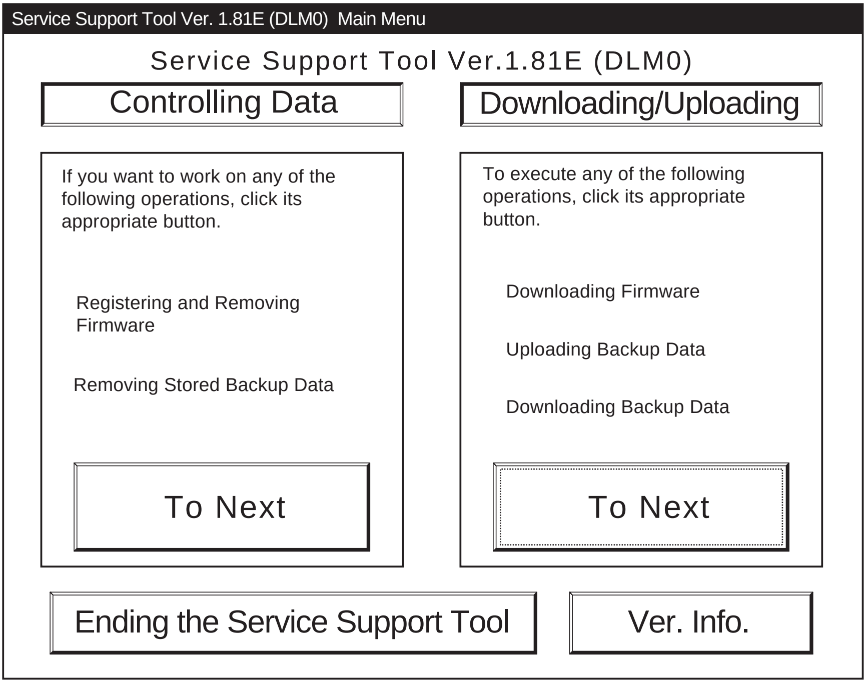
F-16-87

[Procedure]

The following describes downloading of DC controller files.

Both DC controller and Reader controller files are common among models.

1) Click [To next] under Downloading/Uploading.



Service Support Tool Ver. 1.81E (DLM0) Main Menu

Service Support Tool Ver.1.81E (DLM0)

Controlling Data
Downloading/Uploading

If you want to work on any of the following operations, click its appropriate button.

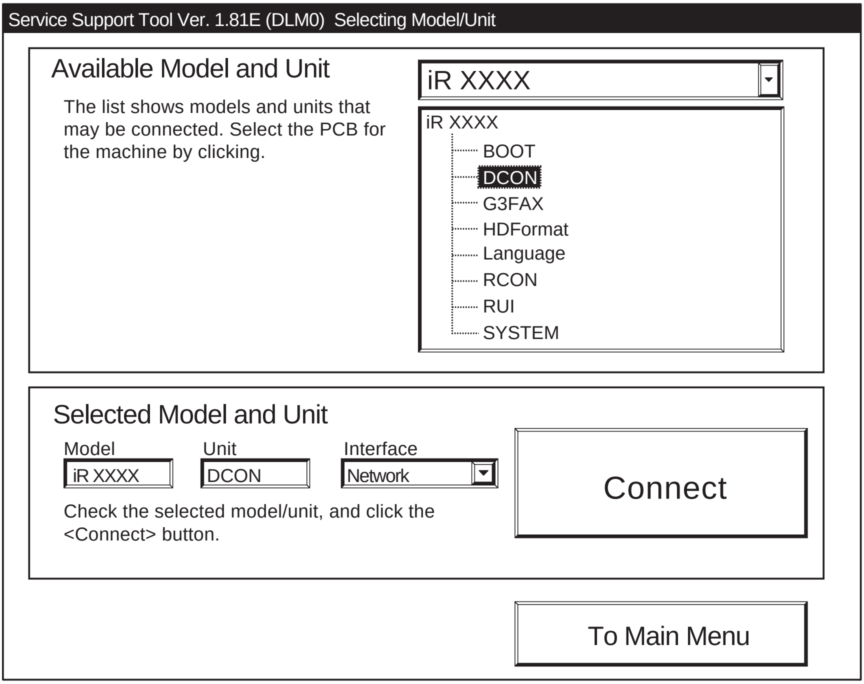
Registering and Removing Firmware
Removing Stored Backup Data
To Next

To execute any of the following operations, click its appropriate button.

Downloading Firmware
Uploading Backup Data
Downloading Backup Data
To Next
Ending the Service Support Tool
Ver. Info.

F-16-88

2) Select [DCON], and click [Connect].



Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iR XXXX
iR XXXX
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
SYSTEM

Selected Model and Unit

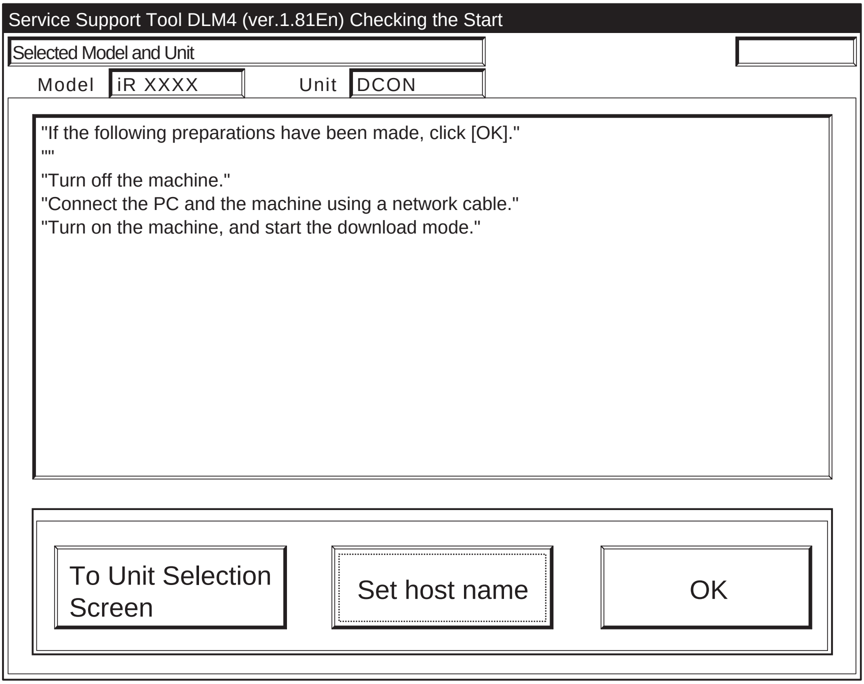
Model: iR XXXX
Unit: DCON
Interface: Network

Check the selected model/unit, and click the <Connect> button.

Connect
To Main Menu

F-16-89

3) Click [Set host name].


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Model
Unit
To Unit Selection Screen
Set host name
OK

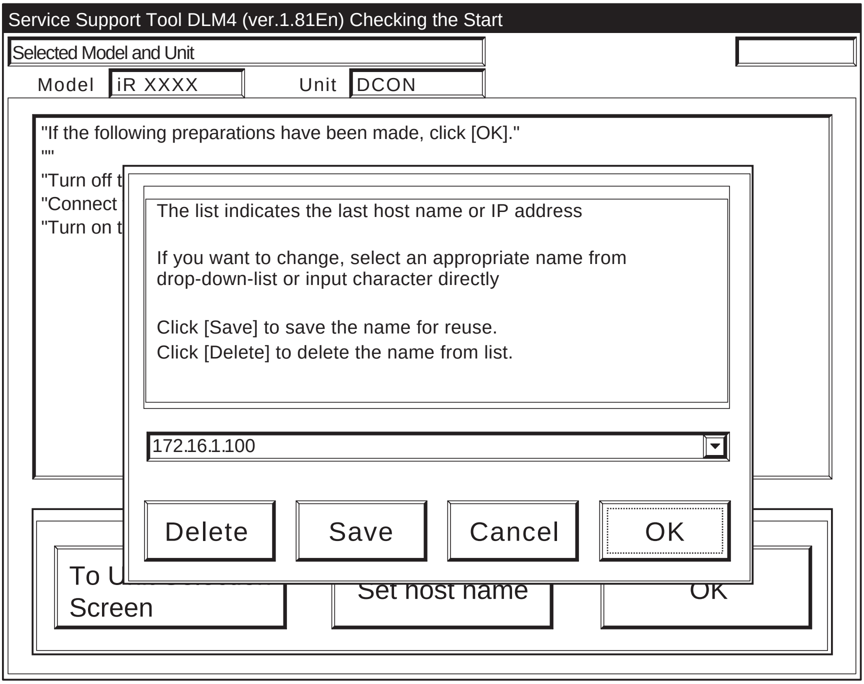
Model: iR XXXX

Unit: DCON

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-90

4) The machine's IP address is entered automatically; click [OK].



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Model iR XXXX Unit DCON

"If the following preparations have been made, click [OK]."

""

"Turn off t

"Connect

"Turn on t

The list indicates the last host name or IP address

If you want to change, select an appropriate name from drop-down-list or input character directly

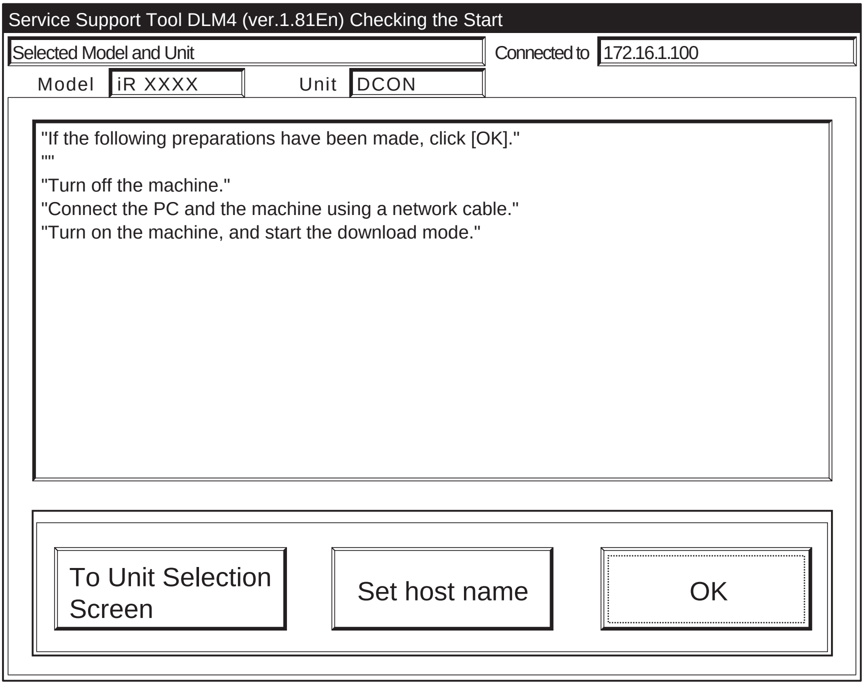
Click [Save] to save the name for reuse.

Click [Delete] to delete the name from list.

172.16.1.100

F-16-91

5) Click [OK] to start connection.


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Connected to
To Unit Selection Screen
Set host name
OK

Connected to 172.16.1.100

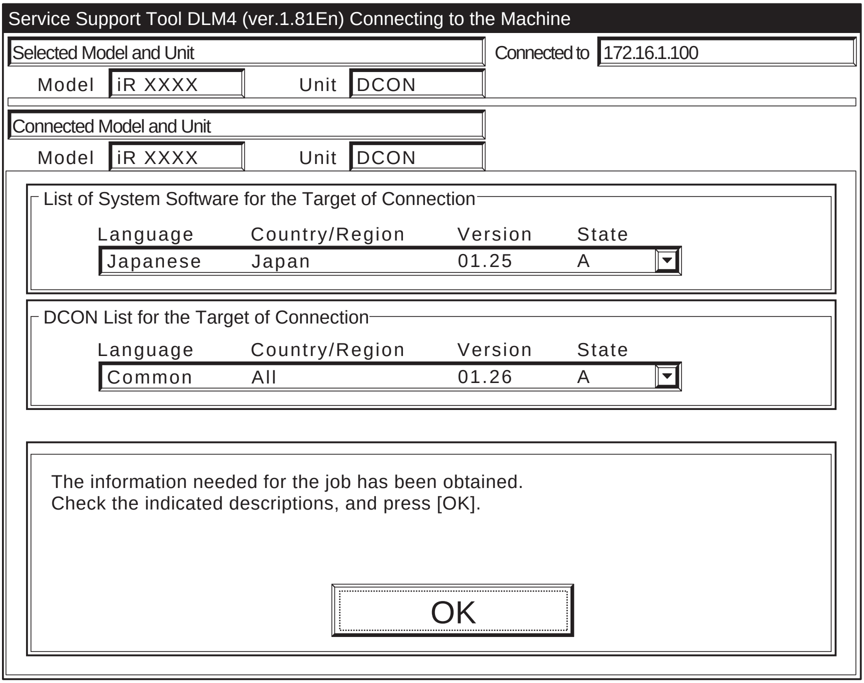
Model iR XXXX

Unit DCON

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-92

6) When the machine has made a connection and brings up the following screen, click [OK].



Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine

Selected Model and Unit

Model: iR XXXX

Unit: DCON

Connected to: 172.16.1.100

Connected Model and Unit

Model: iR XXXX

Unit: DCON

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

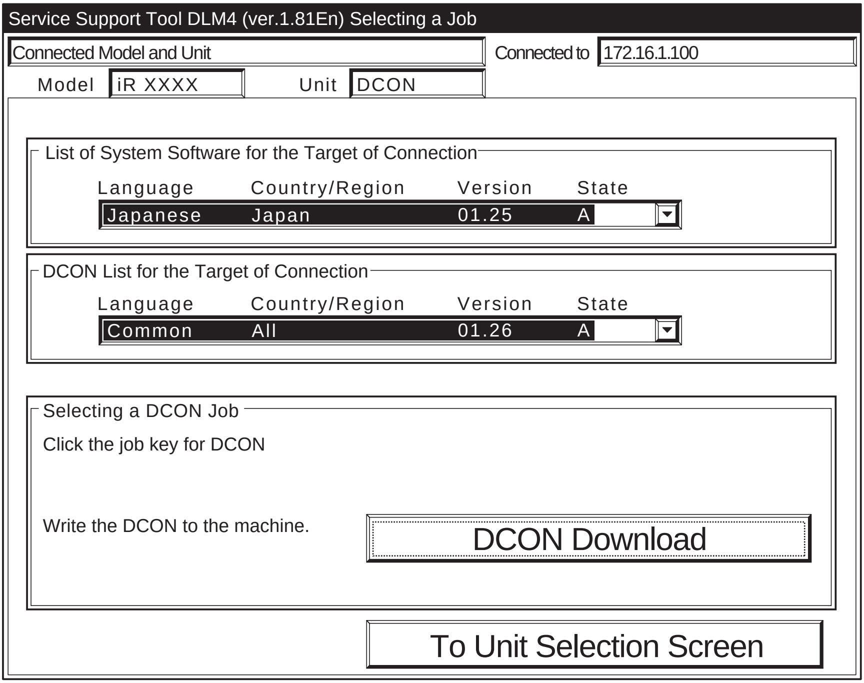
DCON List for the Target of Connection

Language	Country/Region	Version	State
Common	All	01.26	A

The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-93

7) Click [DCON Download].


Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: DCON

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

DCON List for the Target of Connection

Language	Country/Region	Version	State
Common	All	01.26	A

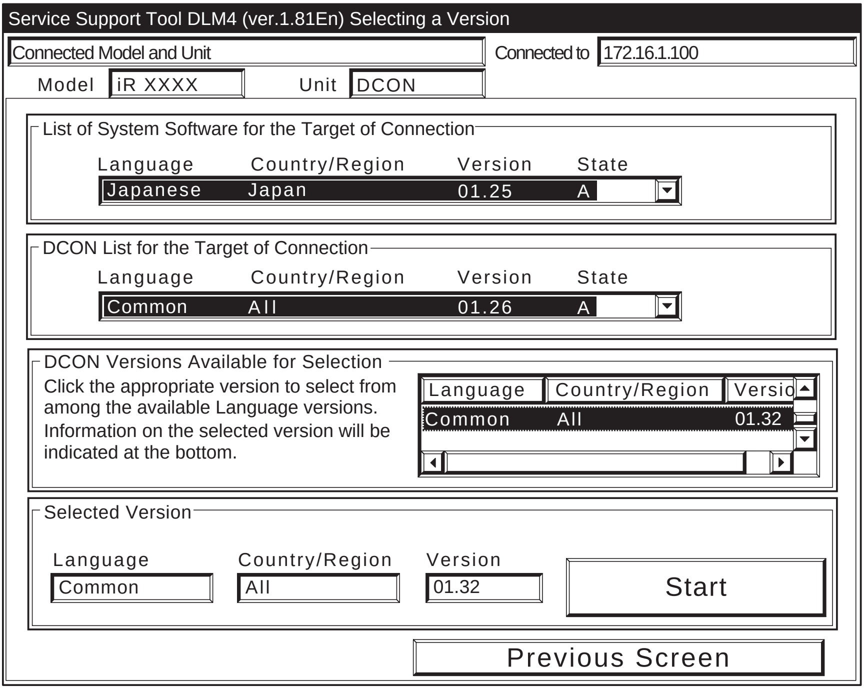
Selecting a DCON Job

Click the job key for DCON

Write the DCON to the machine.

F-16-94

8) Select the version to download, and click [Start].



Service Support Tool DLM4 (ver.1.81En) Selecting a Version

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: DCON

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

DCON List for the Target of Connection

Language	Country/Region	Version	State
Common	All	01.26	A

DCON Versions Available for Selection

Click the appropriate version to select from among the available Language versions. Information on the selected version will be indicated at the bottom.

Language	Country/Region	Versio
Common	All	01.32

Selected Version

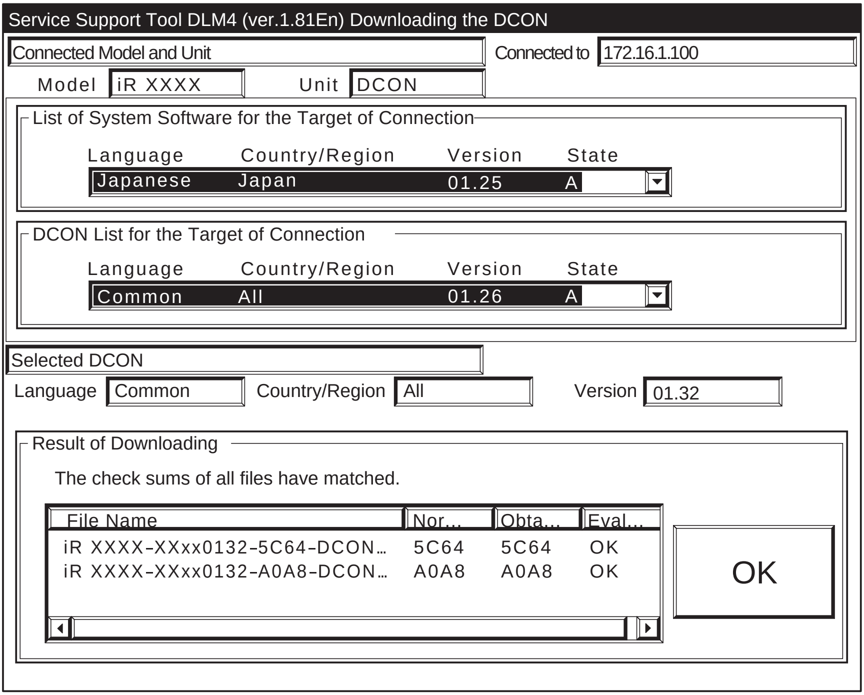
Language: Common

Country/Region: All

Version: 01.32

F-16-95

9) When the results of the downloading are indicated, and click [OK].



Service Support Tool DLM4 (ver.1.81En) Downloading the DCON

Connected Model and Unit — Connected to: 172.16.1.100

Model: iR XXXX — Unit: DCON

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

DCON List for the Target of Connection

Language	Country/Region	Version	State
Common	All	01.26	A

Selected DCON

Language: Common — Country/Region: All — Version: 01.32

Result of Downloading

The check sums of all files have matched.

File Name	Nor...	Obta...	Eval...
iR XXXX-XXxx0132-5C64-DCON…	5C64	5C64	OK
iR XXXX-XXxx0132-A0A8-DCON…	A0A8	A0A8	OK

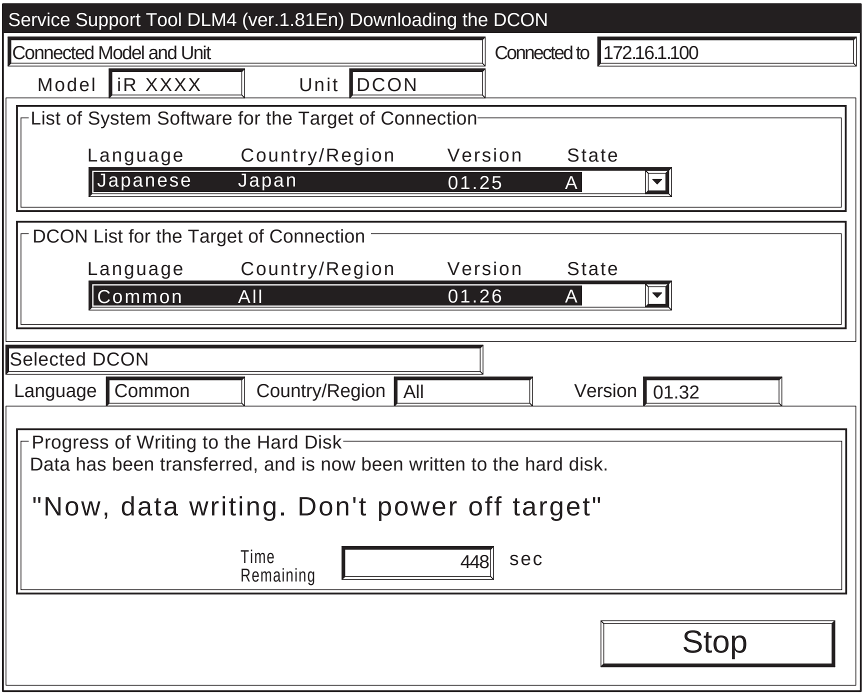
F-16-96

10) Click [To Unit Selection Screen].

[after Downloading]
When you have downloaded DC controller or Reader controller files, be sure to turn off and then on the machine's main power switch.

-You cannot download the DC controller and Reader controller files in succession.
-Never turn off the machine while the following screen is shown.
Otherwise, writing to `DCON/RCON' can fail, indicated by the error code.

DCON: E733
RCON: E732



Service Support Tool DLM4 (ver.1.81En) Downloading the DCON

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: DCON

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

DCON List for the Target of Connection

Language	Country/Region	Version	State
Common	All	01.26	A

Selected DCON

Language: Common

Country/Region: All

Version: 01.32

Progress of Writing to the Hard Disk

Data has been transferred, and is now been written to the hard disk.

"Now, data writing. Don't power off target"

Time Remaining: 448 sec

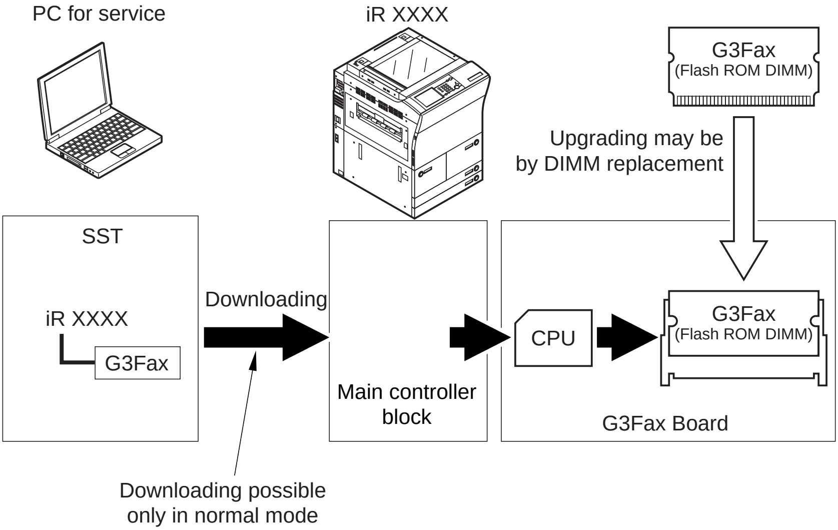
F-16-97

If an error code is indicated, be sure to download the appropriate system software.

16.4.6 Downloading the G3 FAX Software

16.4.6.1 Outline

The G3fax files are downloaded by way of the main controller block.


PC for service
iR XXXX
G3Fax
(Flash ROM DIMM)
Upgrading may be
by DIMM replacement
SST
iR XXXX
G3Fax
Downloading
Main controller
block
CPU
G3Fax
(Flash ROM DIMM)
G3Fax Board
Downloading possible
only in normal mode

F-16-98

⚠

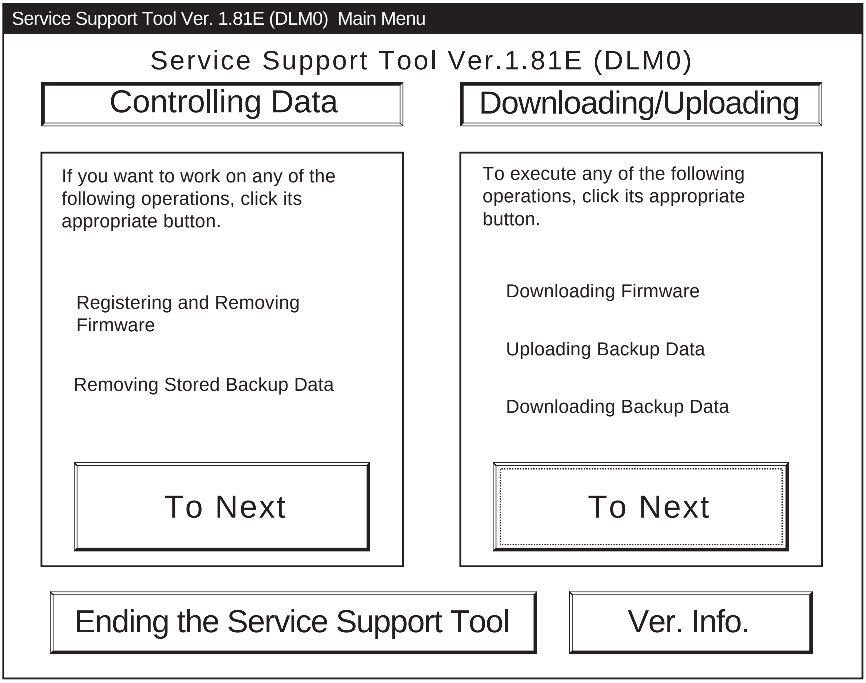
If downloading fails, the flash ROM DIMM must be replaced.

16.4.6.2 Downloading Procedure

[Procedure]

Use normal mode for downloading.

1) Click [To next] under Downloading/Uploading.



Service Support Tool Ver. 1.81E (DLM0) Main Menu

Service Support Tool Ver.1.81E (DLM0)

Controlling Data
Downloading/Uploading

If you want to work on any of the following operations, click its appropriate button.

Registering and Removing Firmware

Removing Stored Backup Data

To execute any of the following operations, click its appropriate button.

Downloading Firmware

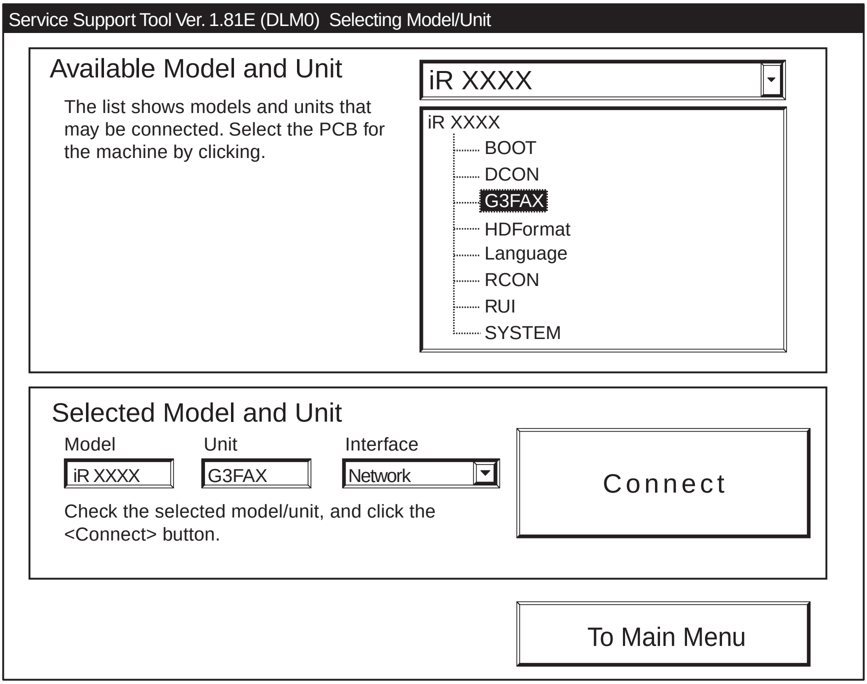
Uploading Backup Data

Downloading Backup Data

To Next
To Next
Ending the Service Support Tool
Ver. Info.

F-16-99

2) Select [G3FAX], and click [Connect].



Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

Selected Model and Unit

Model: iR XXXX

Unit: G3FAX

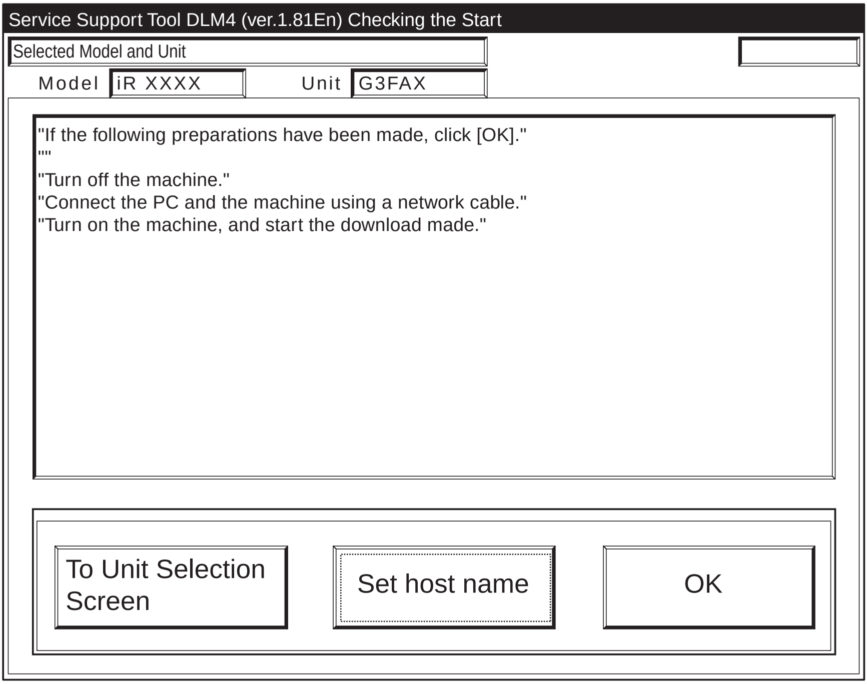
Interface: Network

Check the selected model/unit, and click the <Connect> button.

iR XXXX
iR XXXX
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
SYSTEM
Connect
To Main Menu

F-16-100

3) Click [Set host name].

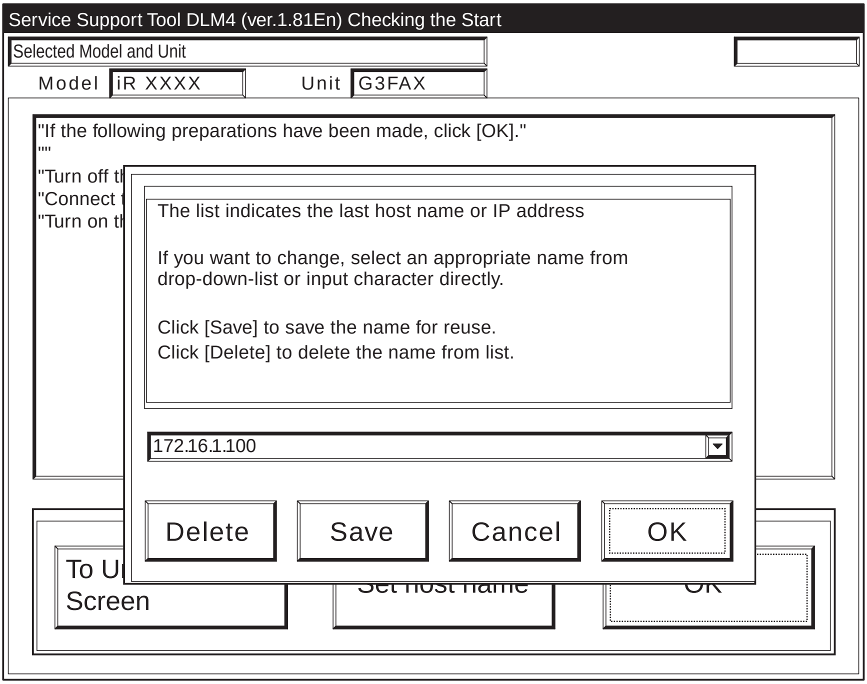

Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

Model iR XXXX
Unit G3FAX

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download made."

F-16-101

4) The machine's IP address is entered automatically; click [OK].



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Model iR XXXX Unit G3FAX

"If the following preparations have been made, click [OK]."
""
"Turn off t
"Connect
"Turn on t

The list indicates the last host name or IP address

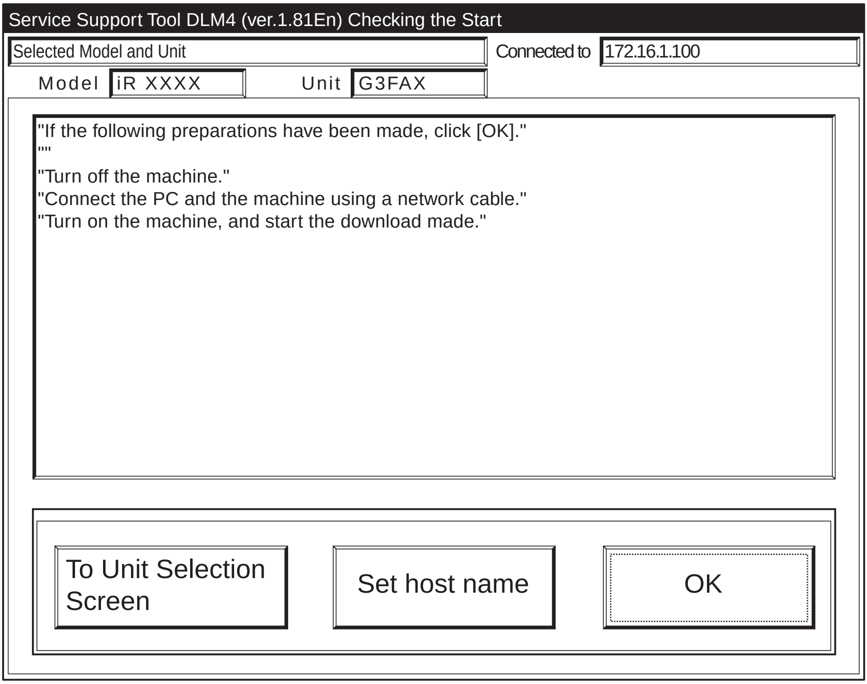
If you want to change, select an appropriate name from drop-down-list or input character directly.

Click [Save] to save the name for reuse.
Click [Delete] to delete the name from list.

172.16.1.100

F-16-102

5) Click [OK] to start connection.


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

Connected to 172.16.1.100

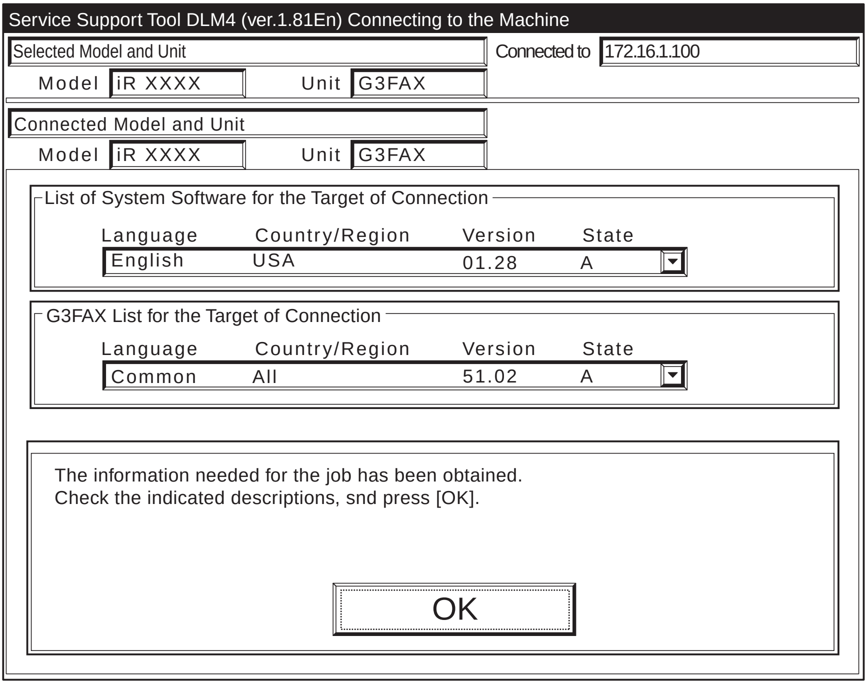
Model iR XXXX

Unit G3FAX

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download made."

F-16-103

6) When the machine has made a connection and brings up the following screen, click [OK].


Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine

Selected Model and Unit

Model iR XXXX Unit G3FAX

Connected to 172.16.1.100

Connected Model and Unit

Model iR XXXX Unit G3FAX

List of System Software for the Target of Connection

Language	Country/Region	Version	State
English	USA	01.28	A

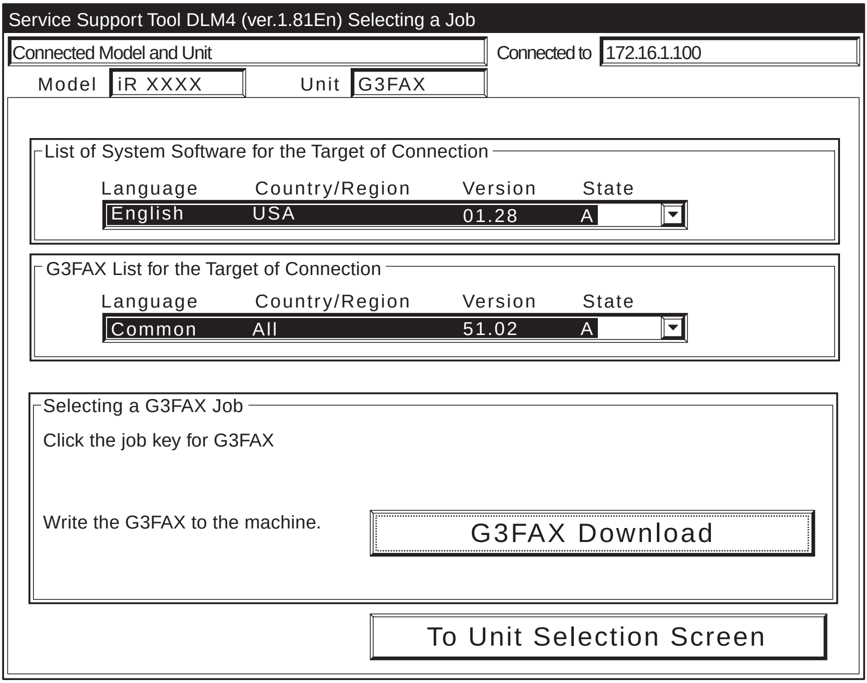
G3FAX List for the Target of Connection

Language	Country/Region	Version	State
Common	All	51.02	A

The information needed for the job has been obtained.
Check the indicated descriptions, snd press [OK].

F-16-104

7) Click [G3FAX Download].



Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit G3FAX

List of System Software for the Target of Connection

Language	Country/Region	Version	State
English	USA	01.28	A

G3FAX List for the Target of Connection

Language	Country/Region	Version	State
Common	All	51.02	A

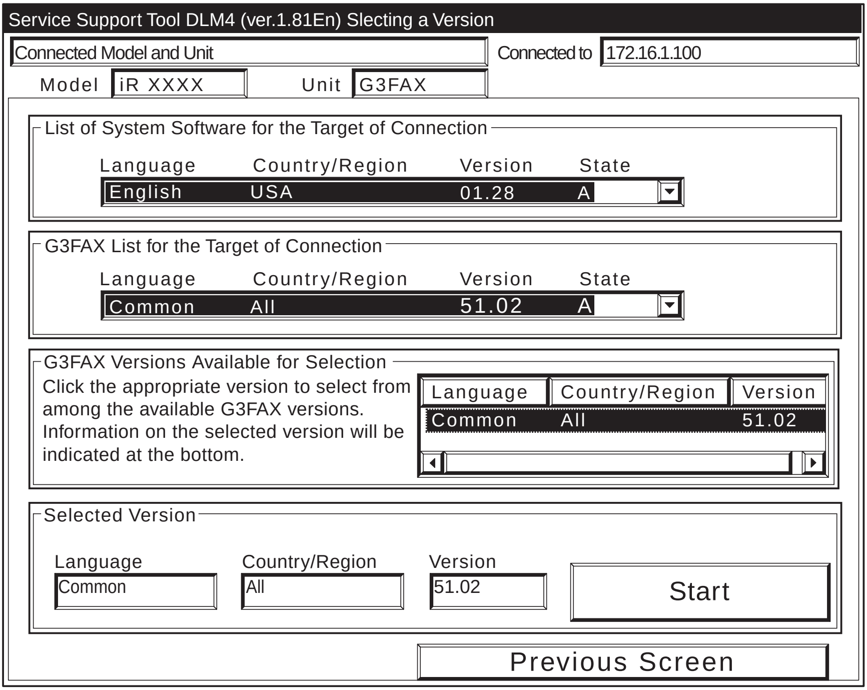
Selecting a G3FAX Job

Click the job key for G3FAX

Write the G3FAX to the machine.

F-16-105

8) Select the version to download, and click [Start].



Service Support Tool DLM4 (ver.1.81En) Slecting a Version

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit G3FAX

List of System Software for the Target of Connection

Language	Country/Region	Version	State
English	USA	01.28	A

G3FAX List for the Target of Connection

Language	Country/Region	Version	State
Common	All	51.02	A

G3FAX Versions Available for Selection

Click the appropriate version to select from among the available G3FAX versions. Information on the selected version will be indicated at the bottom.

Language	Country/Region	Version
Common	All	51.02

Selected Version

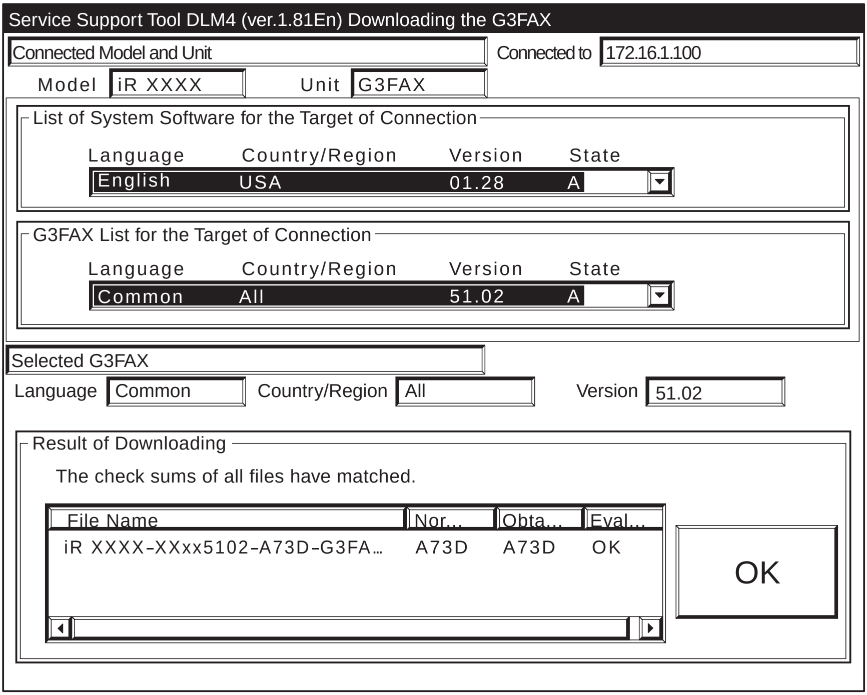
Language: Common

Country/Region: All

Version: 51.02

F-16-106

9) When the results of the downloading are indicated, and click [OK].



Service Support Tool DLM4 (ver.1.81En) Downloading the G3FAX

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit G3FAX

List of System Software for the Target of Connection

Language	Country/Region	Version	State
English	USA	01.28	A

G3FAX List for the Target of Connection

Language	Country/Region	Version	State
Common	All	51.02	A

Selected G3FAX

Language: Common

Country/Region: All

Version: 51.02

Result of Downloading

The check sums of all files have matched.

File Name	Nor...	Obta...	Eval...
iR XXXX-XXxx5102-A73D-G3FA…	A73D	A73D	OK

F-16-107

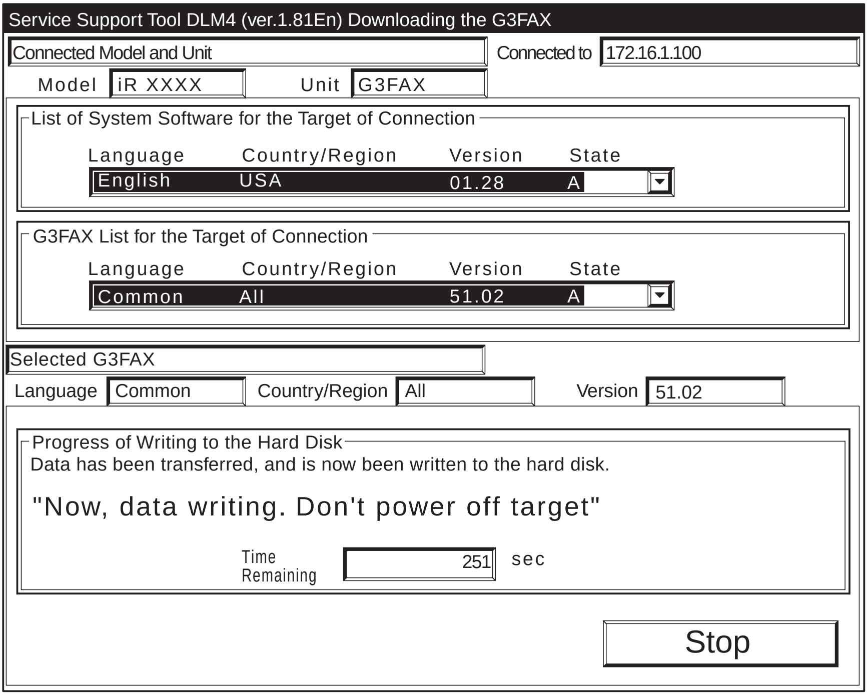
10) Click [To Unit Selection Screen].

[after Downloading]
When you have downloaded G3FAX filess, be sure to turn off and then on the machine's main power switch.

⚠

You cannnot download G3FAX files twice in succession.
(Once downloading ends, the G3FAX board will be reset, leaving download mode.)

Never turn off the machine while the following screen is shown.
Writing to the flash ROM DIMM of the G3 fax board will fail, preventing the G3FAX board functions from operating normally.



Service Support Tool DLM4 (ver.1.81En) Downloading the G3FAX

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX Unit G3FAX

List of System Software for the Target of Connection

Language	Country/Region	Version	State
English	USA	01.28	A

G3FAX List for the Target of Connection

Language	Country/Region	Version	State
Common	All	51.02	A

Selected G3FAX

Language Common Country/Region All Version 51.02

Progress of Writing to the Hard Disk

Data has been transferred, and is now been written to the hard disk.

"Now, data writing. Don't power off target"

Time Remaining 251 sec

F-16-108

If the G3fax board fails to operate, be sure to replace the flash ROM DIMM onthe G3fax board.

16.5 Uploading and Downloading Backup Data

16.5.1 Outline

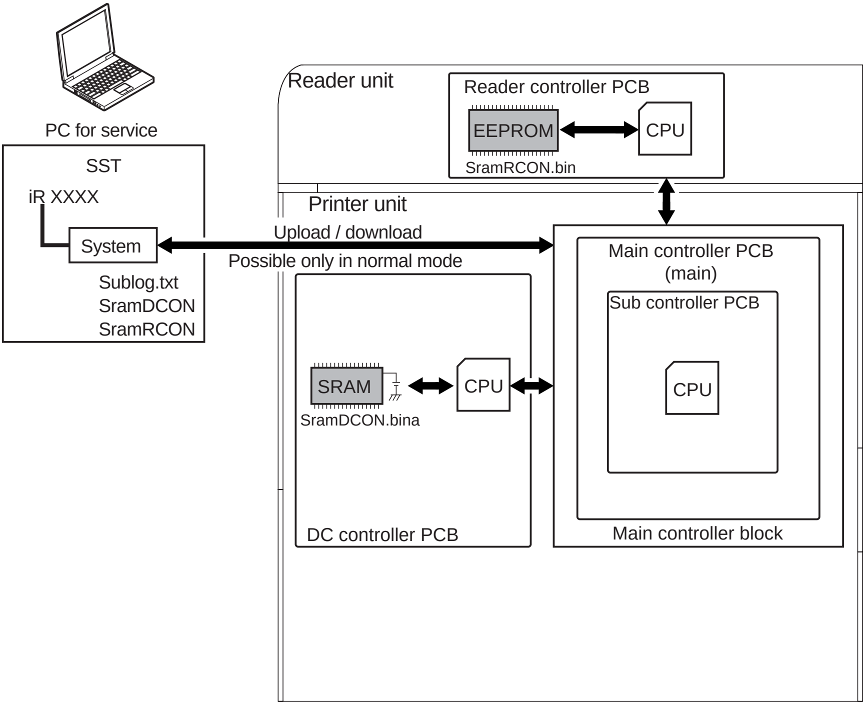
The machine's backup data is stored on the SRAM, DC controller PCB, and Reader controller PCB.
Any backup data is selected with reference to its file name used when uploading it.

T-16-9

Backup data	File name selected at time of uploading
DC controller PCB	SramDCON.bin
Reder controller PCB	SramRCON.bin
For R&D	Sublog.txt

⚠

-**Be sure not to download or upload the [Sublog.txt]** in the field.
-When replacing the DC controller PCB or the Reder controller PCB, it is a good idea to upload its data in advance, and download it after replacement so that parts counter reading and the like may be retained.


PC for service
SST
iR XXXX
System
Sublog.txt
SramDCON
SramRCON
Reader unit
Reader controller PCB
EEPROM
CPU
SramRCON.bin
Printer unit
Upload / download
Possible only in normal mode
SRAM
CPU
SramDCON.bina
DC controller PCB
Main controller PCB (main)
Sub controller PCB
CPU
Main controller block

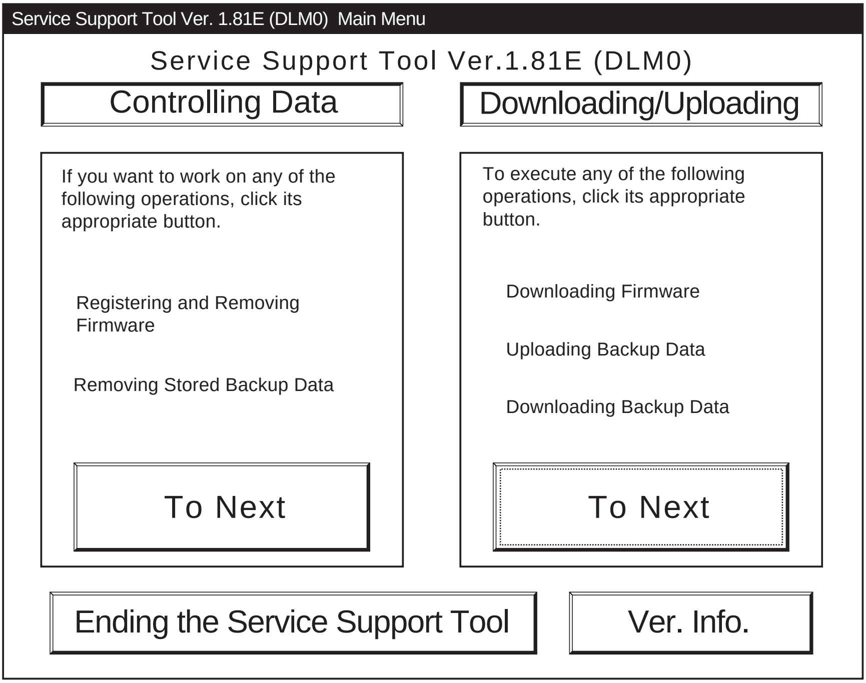
F-16-109

16.5.2 Uploading Procedure

[Procedure]

Use normal mode (Power ON 1+7 on keypad) for uploading.

1) Click the [To Next] under Downloading/Uploading.



Service Support Tool Ver. 1.81E (DLM0) Main Menu

Service Support Tool Ver.1.81E (DLM0)

Controlling Data

If you want to work on any of the following operations, click its appropriate button.

Registering and Removing Firmware

Removing Stored Backup Data

Downloading/Uploading

To execute any of the following operations, click its appropriate button.

Downloading Firmware

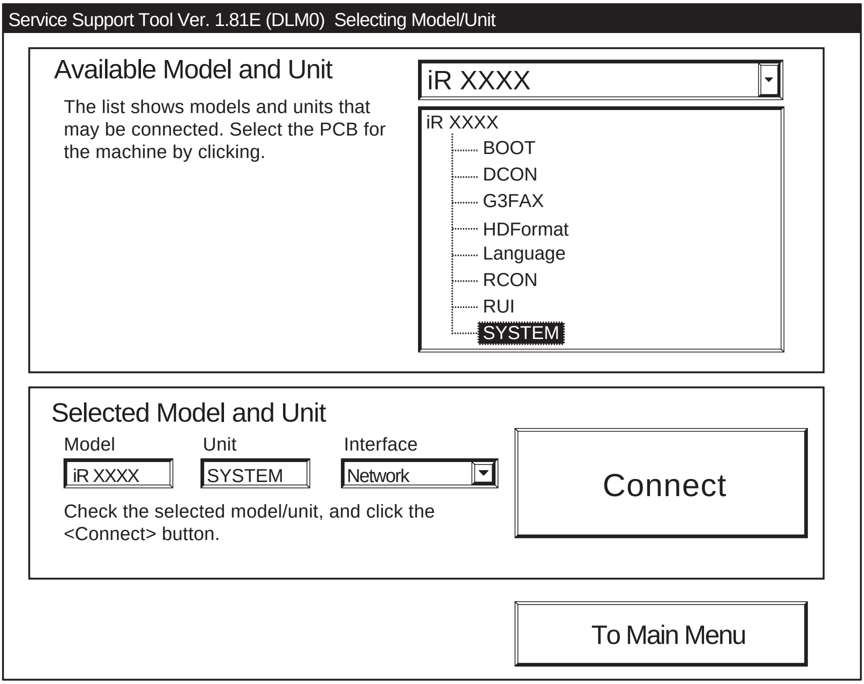
Uploading Backup Data

Downloading Backup Data

To Next
To Next
Ending the Service Support Tool
Ver. Info.

F-16-110

2) Select [SYSTEM] under iRC6800, and click [Connect].


Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit

Available Model and Unit

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

iR XXXX
iR XXXX
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
SYSTEM

Selected Model and Unit

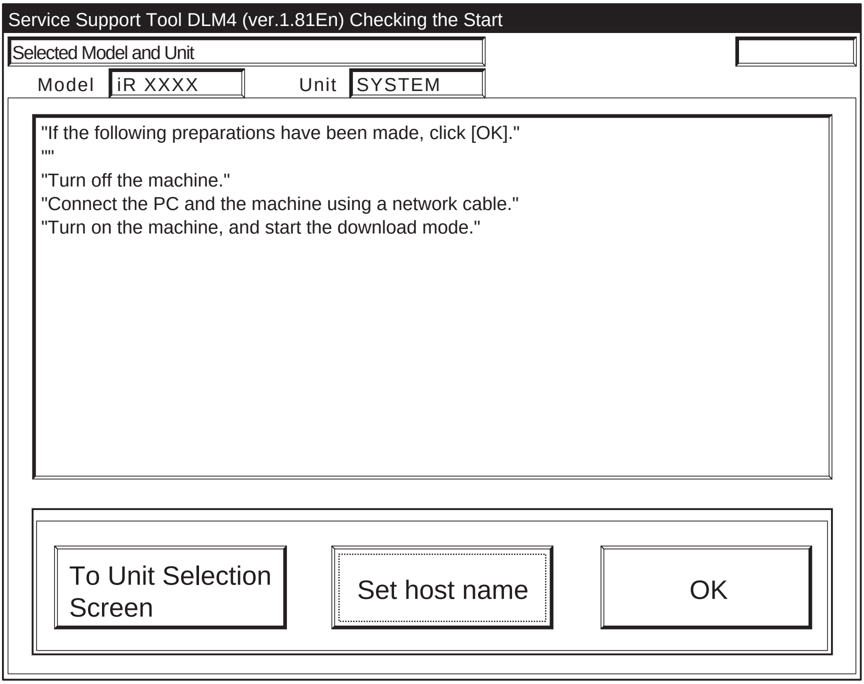
Model: iR XXXX
Unit: SYSTEM
Interface: Network

Check the selected model/unit, and click the <Connect> button.

Connect
To Main Menu

F-16-111

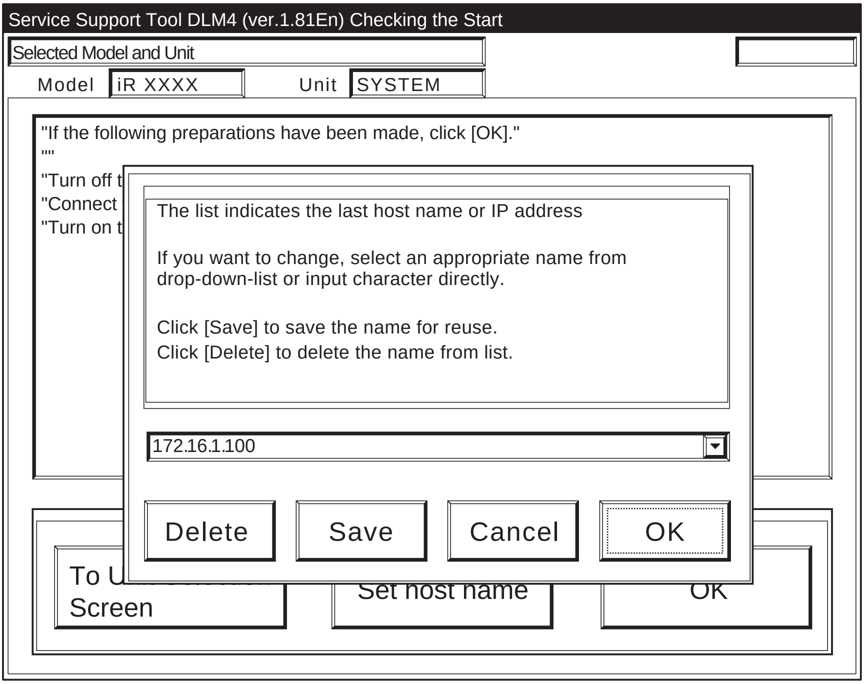
3) Click [Set host name].


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Model
iR XXXX
Unit
SYSTEM
To Unit Selection Screen
Set host name
OK

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-112

4) The machine's IP address is entered automatically; click [OK].



Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Model
Unit
Delete
Save
Cancel
OK
To U
Screen
Set host name
OK

Model: iR XXXX

Unit: SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off t
"Connect
"Turn on t

The list indicates the last host name or IP address

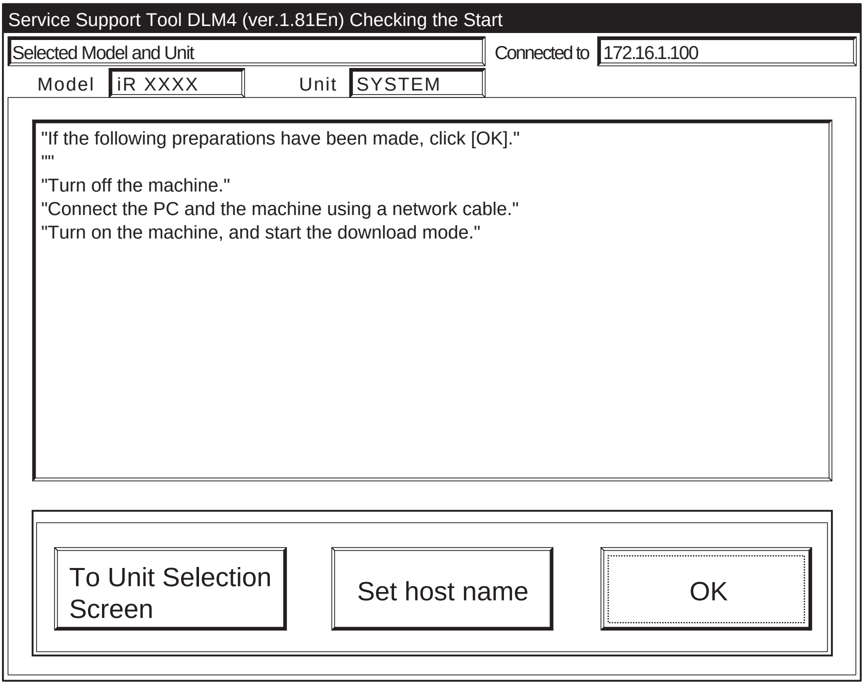
If you want to change, select an appropriate name from drop-down-list or input character directly.

Click [Save] to save the name for reuse.
Click [Delete] to delete the name from list.

172.16.1.100

F-16-113

5) Click [OK] to start connection.


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

Connected to 172.16.1.100

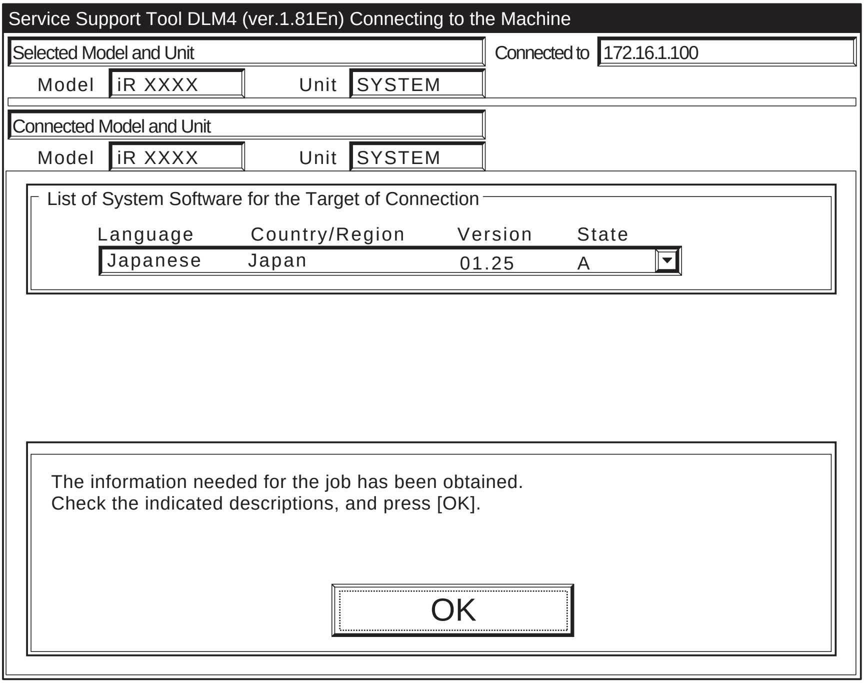
Model iR XXXX

Unit SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-114

6) When the machine has made a connection and brings up the following screen, click [OK].


Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine

Selected Model and Unit

Connected to 172.16.1.100

Model iR XXXX Unit SYSTEM

Connected Model and Unit

Model iR XXXX Unit SYSTEM

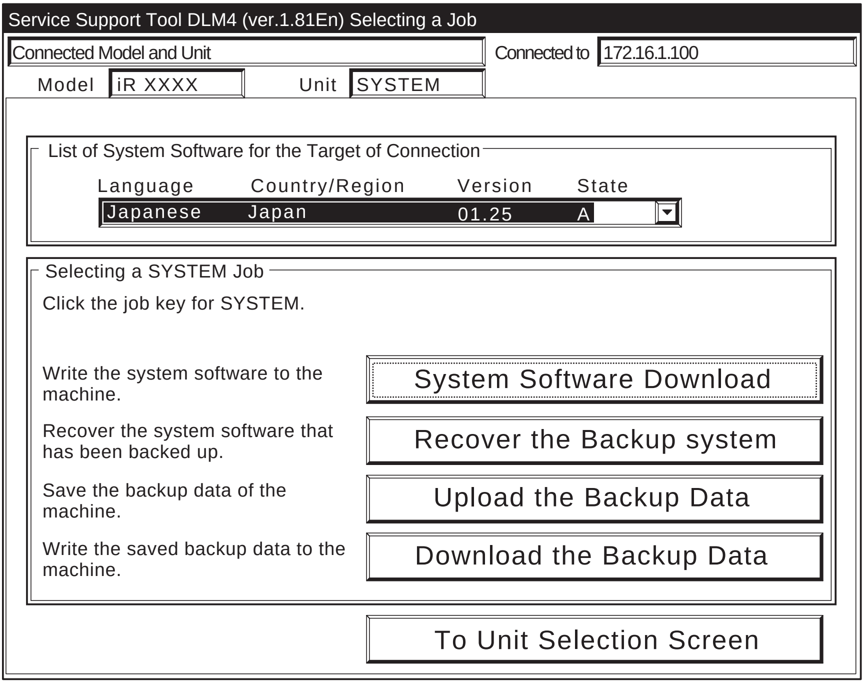
List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-115

7) Click [Upload the Backup Data].



Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

Selecting a SYSTEM Job

Click the job key for SYSTEM.

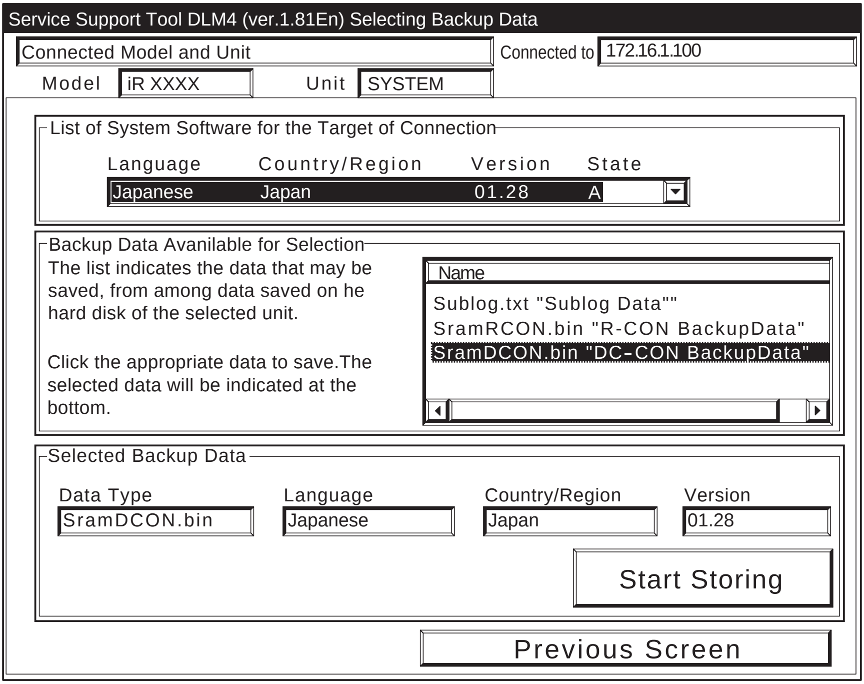
Write the system software to the machine.	System Software Download
Recover the system software that has been backed up.	Recover the Backup system
Save the backup data of the machine.	Upload the Backup Data
Write the saved backup data to the machine.	Download the Backup Data

F-16-116

8) Select the data to upload, and click [Start Storing].

-DC controller PCB: SramDCON.bin

-Reader controller PCB: SramRCON.bin



Service Support Tool DLM4 (ver.1.81En) Selecting Backup Data

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.28	A

Backup Data Avanilable for Selection

The list indicates the data that may be saved, from among data saved on he hard disk of the selected unit.

Click the appropriate data to save.The selected data will be indicated at the bottom.

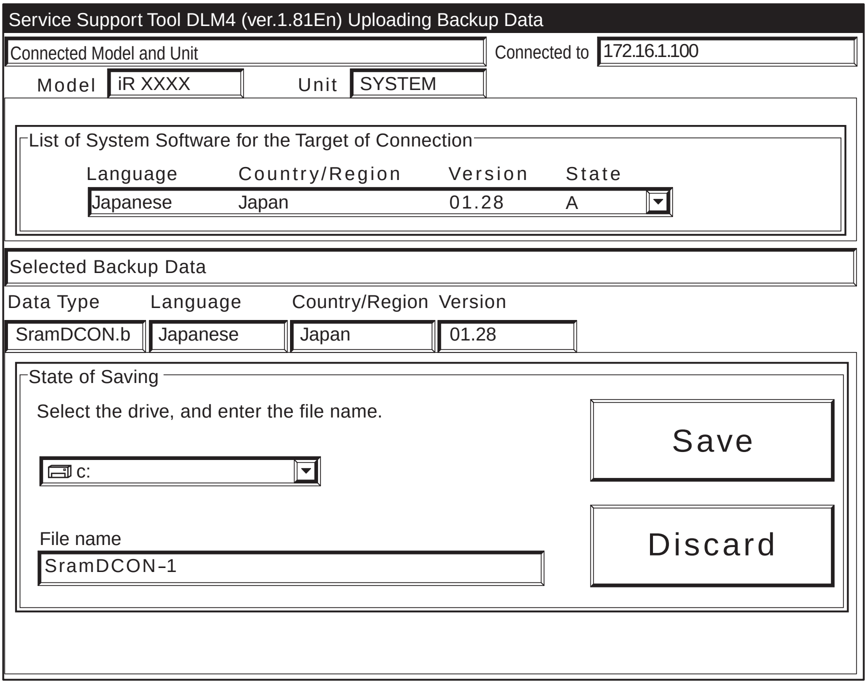
Name
Sublog.txt "Sublog Data""
SramRCON.bin "R-CON BackupData"
SramDCON.bin "DC-CON BackupData"

Selected Backup Data

Data Type	Language	Country/Region	Version
SramDCON.bin	Japanese	Japan	01.28

F-16-117

9) When uploading has ended, enter a file name to use, and click [Save].



Service Support Tool DLM4 (ver.1.81En) Uploading Backup Data

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.28	A

Selected Backup Data

Data Type	Language	Country/Region	Version
SramDCON.b	Japanese	Japan	01.28

State of Saving

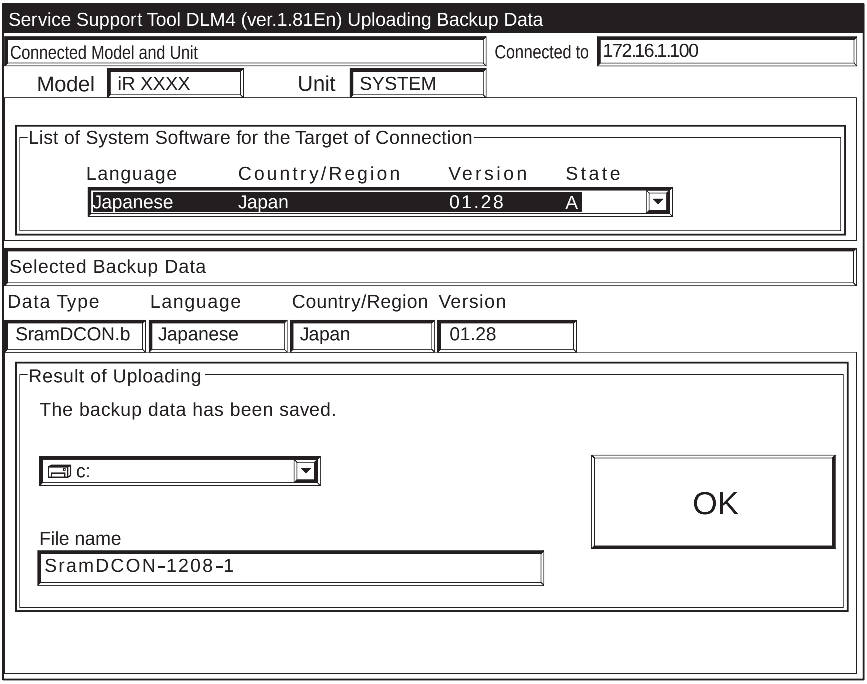
Select the drive, and enter the file name.

c:

File name: SramDCON-1

F-16-118

10) When the file has been saved, click [OK].



Service Support Tool DLM4 (ver.1.81En) Uploading Backup Data

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.28	A

Selected Backup Data

Data Type	Language	Country/Region	Version
SramDCON.b	Japanese	Japan	01.28

Result of Uploading

The backup data has been saved.

c:

File name SramDCON-1208-1

F-16-119

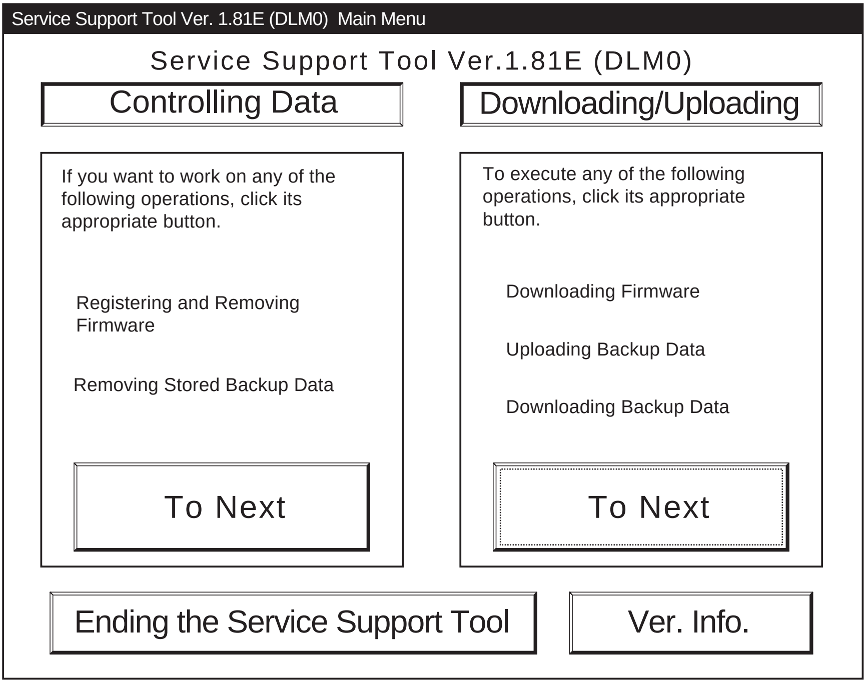
11) Click [To Unit Selection Screen].

16.5.3 Downloading Procedure

[Procedure]

Use normal mode (Power ON 1+7 on keypad) for downloading.

1) Click the [To Next] under Downloading/Uploading.


Service Support Tool Ver. 1.81E (DLM0) Main Menu
Service Support Tool Ver.1.81E (DLM0)
Controlling Data
Downloading/Uploading
To Next
To Next
Ending the Service Support Tool
Ver. Info.

If you want to work on any of the following operations, click its appropriate button.

Registering and Removing Firmware

Removing Stored Backup Data

To execute any of the following operations, click its appropriate button.

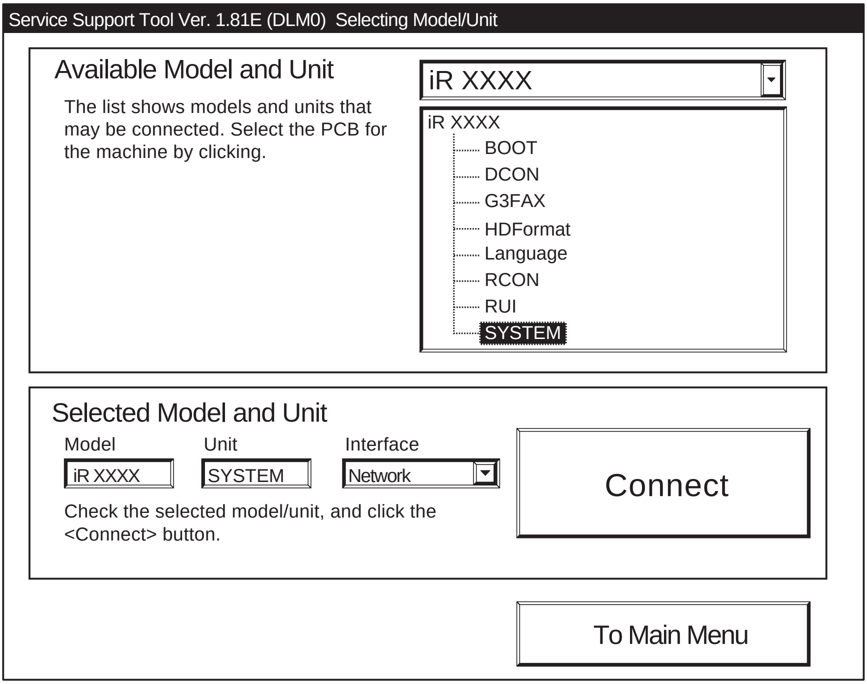
Downloading Firmware

Uploading Backup Data

Downloading Backup Data

F-16-120

2) Select [SYSTEM] under iRC6800, and click [Connect].


Service Support Tool Ver. 1.81E (DLM0) Selecting Model/Unit
Available Model and Unit
iR XXXX
iR XXXX
BOOT
DCON
G3FAX
HDFormat
Language
RCON
RUI
SYSTEM
Selected Model and Unit
Connect
To Main Menu

The list shows models and units that may be connected. Select the PCB for the machine by clicking.

Model: iR XXXX

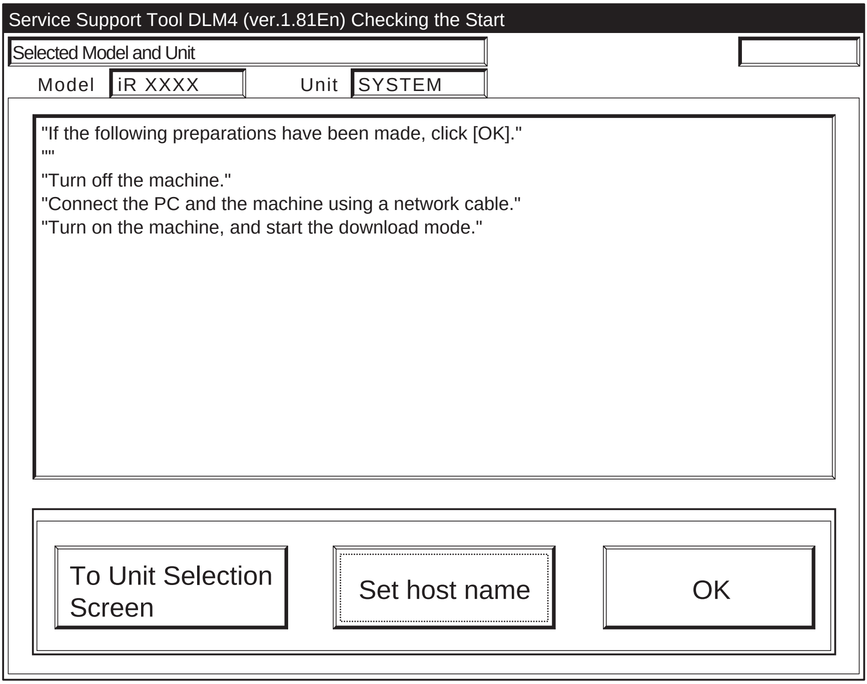
Unit: SYSTEM

Interface: Network

Check the selected model/unit, and click the <Connect> button.

F-16-121

3) Click [Set host name].


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
Model
Unit
To Unit Selection Screen
Set host name
OK

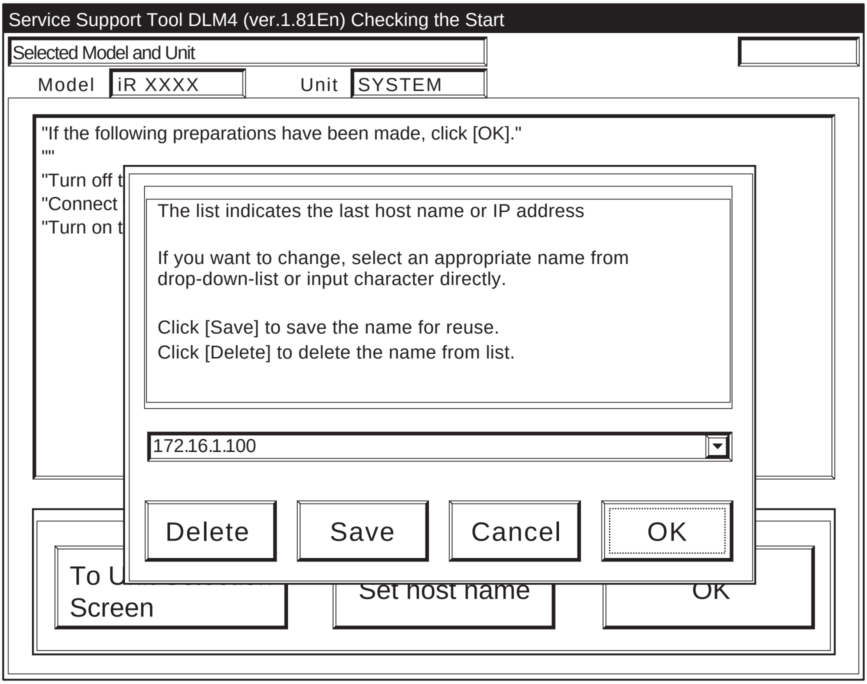
Model: iR XXXX

Unit: SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-122

4) The machine's IP address is entered automatically; click [OK].



Service Support Tool DLM4 (ver.1.81En) Checking the Start

Selected Model and Unit

Model: iR XXXX

Unit: SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off t
"Connect
"Turn on t

The list indicates the last host name or IP address

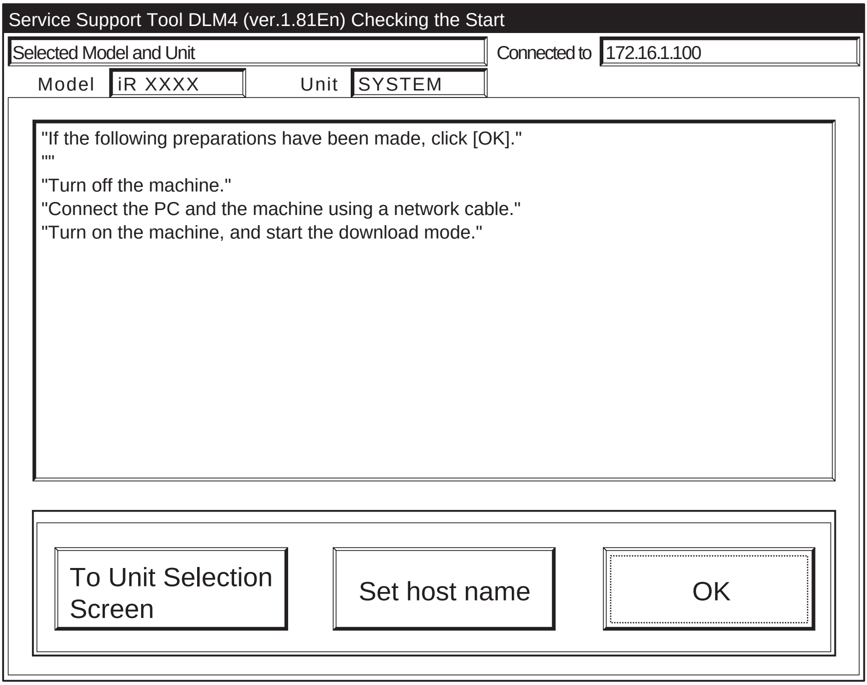
If you want to change, select an appropriate name from drop-down-list or input character directly.

Click [Save] to save the name for reuse.
Click [Delete] to delete the name from list.

172.16.1.100

F-16-123

5) Click [OK] to start connection.


Service Support Tool DLM4 (ver.1.81En) Checking the Start
Selected Model and Unit
To Unit Selection Screen
Set host name
OK

Connected to 172.16.1.100

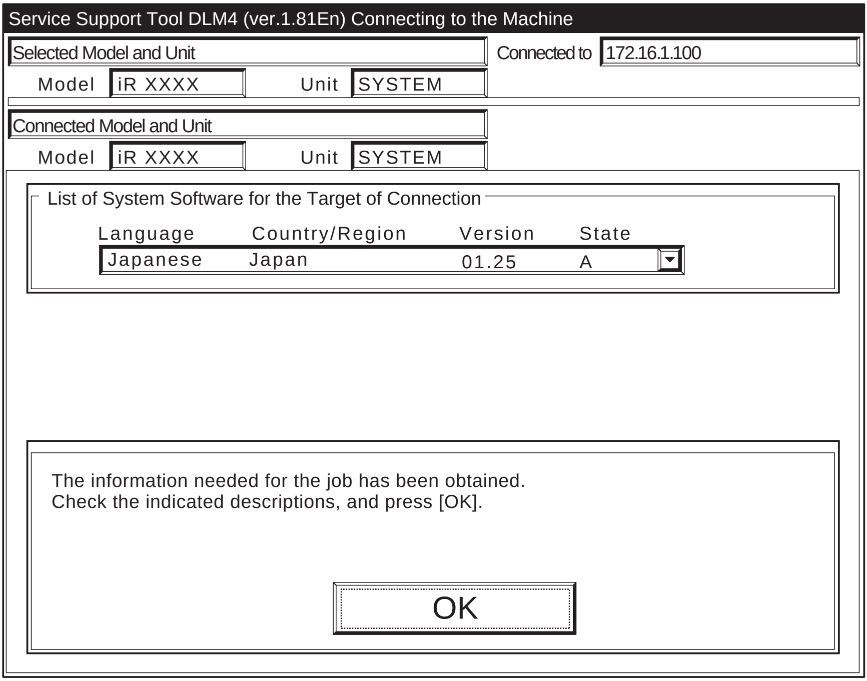
Model iR XXXX

Unit SYSTEM

"If the following preparations have been made, click [OK]."
""
"Turn off the machine."
"Connect the PC and the machine using a network cable."
"Turn on the machine, and start the download mode."

F-16-124

6) When the machine has made a connection and brings up the following screen, click [OK].



Service Support Tool DLM4 (ver.1.81En) Connecting to the Machine
Selected Model and Unit
Connected to
Model
Unit
Connected Model and Unit
Model
Unit
List of System Software for the Target of Connection
Language
Country/Region
Version
State
OK

Connected to 172.16.1.100

Selected Model and Unit: Model iR XXXX, Unit SYSTEM

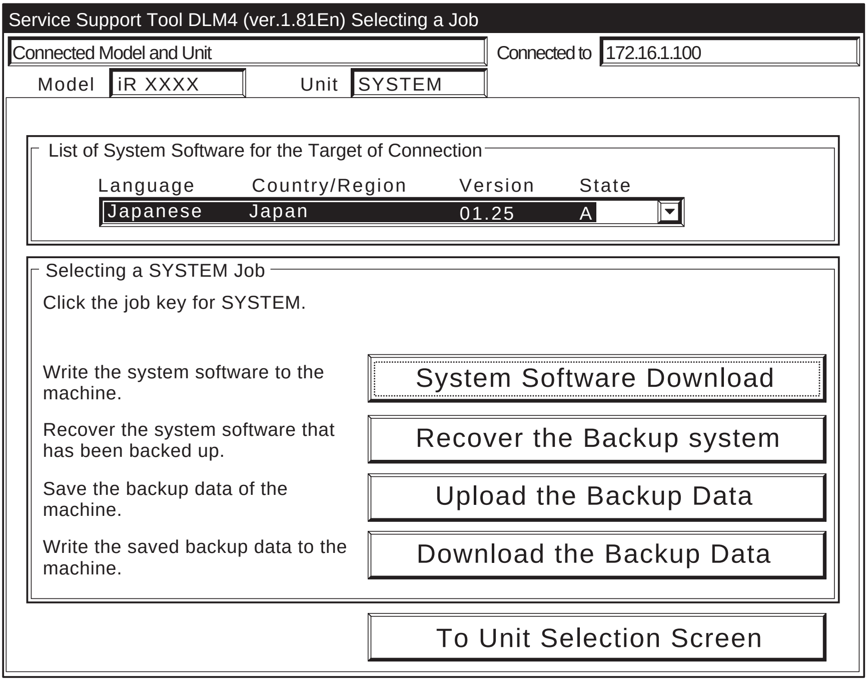
Connected Model and Unit: Model iR XXXX, Unit SYSTEM

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

The information needed for the job has been obtained.
Check the indicated descriptions, and press [OK].

F-16-125

7) Click [Download the Backup Data].



Service Support Tool DLM4 (ver.1.81En) Selecting a Job

Connected Model and Unit

Connected to: 172.16.1.100

Model: iR XXXX

Unit: SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.25	A

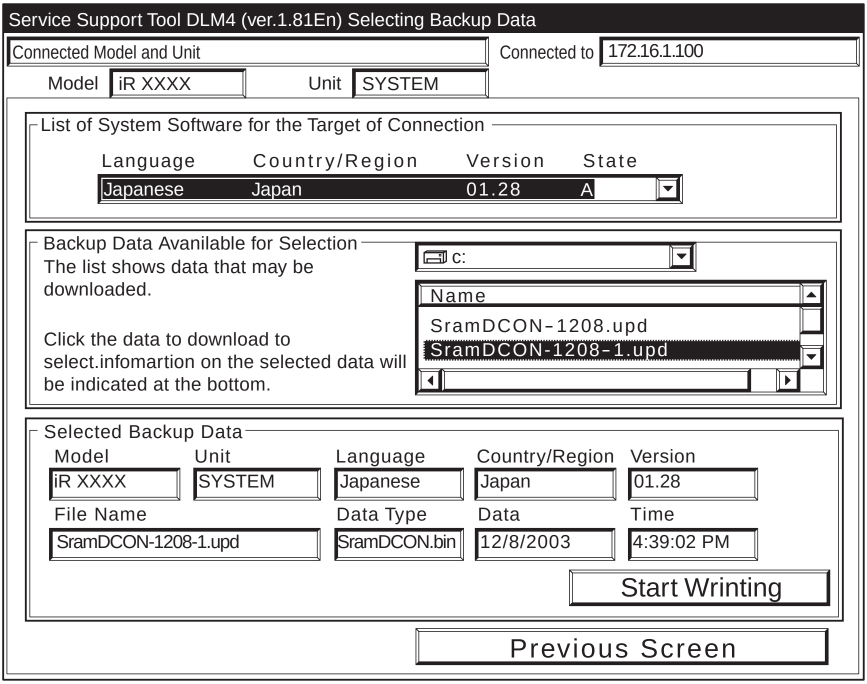
Selecting a SYSTEM Job

Click the job key for SYSTEM.

Write the system software to the machine.	System Software Download
Recover the system software that has been backed up.	Recover the Backup system
Save the backup data of the machine.	Upload the Backup Data
Write the saved backup data to the machine.	Download the Backup Data

F-16-126

8) Select the file to download, and click [Start Writing].



Service Support Tool DLM4 (ver.1.81En) Selecting Backup Data

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.28	A

Backup Data Avanilable for Selection

The list shows data that may be downloaded.

Click the data to download to select.infomartion on the selected data will be indicated at the bottom.

c:

Name

SramDCON-1208.upd

SramDCON-1208-1.upd

Selected Backup Data

Model: iR XXXX

Unit: SYSTEM

Language: Japanese

Country/Region: Japan

Version: 01.28

File Name: SramDCON-1208-1.upd

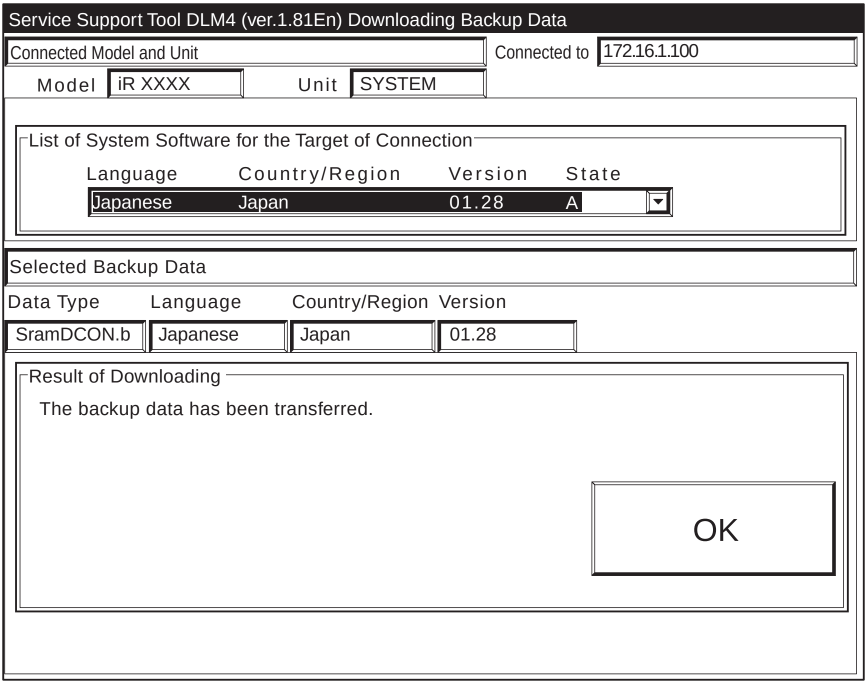
Data Type: SramDCON.bin

Data: 12/8/2003

Time: 4:39:02 PM

F-16-127

9) When uploading has ended, click [OK].



Service Support Tool DLM4 (ver.1.81En) Downloading Backup Data

Connected Model and Unit

Connected to 172.16.1.100

Model iR XXXX

Unit SYSTEM

List of System Software for the Target of Connection

Language	Country/Region	Version	State
Japanese	Japan	01.28	A

Selected Backup Data

Data Type	Language	Country/Region	Version
SramDCON.b	Japanese	Japan	01.28

Result of Downloading

The backup data has been transferred.

F-16-128

10) Click [To Unit Selection Screen].

Chapter 17

Service
Tools

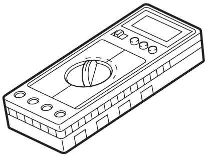
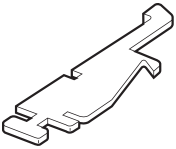
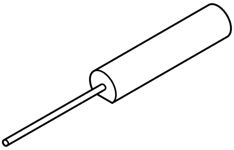
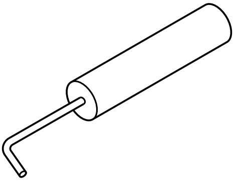
Contents

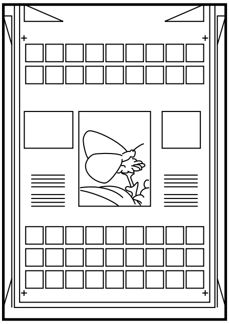
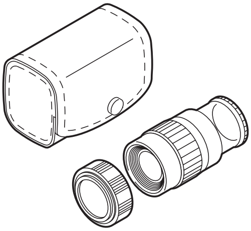
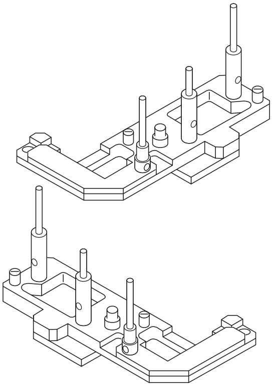
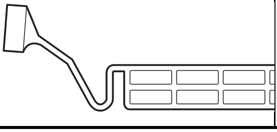
17.1 Special Tools...17-1
17.2 Solvents and Oils...17-4

17.1 Special Tools

In addition to the standard tooles set, the following special tools are required when servicing the machine:

T-17-1

Tool name	Tool No.	Ctgr	Appearance	Remarks
Digital multimeter	FY9-2002	A		Use for electrical checks; for adjustment of laser power in combination with the laser power checker.
Cover switch	TKN-0093	A		
Tester extension pin	FY9-3038	A		Used as a probe extension when making electrical checks.
Tester extension pin (L-shaped)	FY9-3039	A		Used as a probe extension when making electrical checks.

Tool name	Tool No.	Ctgr	Appearance	Remarks
CA1 test Sheet	FY9-9030	A		Used for adjusting/ checking images.
Loupe	CK-0056	B		Used for checking images.
Mirror positioning tool	FY9-3009-040	B		Used for positioning mirror mounts.
Routing mirror cleaning tool	FL2-2474	B		Used for cleaning routing mirror

[Ctgr]

A: Must be kept by each service engineer.

B: Must be kept by each group of about five engineers.

C: Must be kept by each warkshop.

17.2 Solvents and Oils

T-17-2

Item	Uses	Composition	Remarks
Alcohol	Cleaning; e.g., glass, plastic, ruber; external covers.	-Fluoride-family hydrocarbon -Alcohol -Surface activating -Water	-Do not bring ner fire. -Procure locally. -Substitute: IPA(isopropy alcohol)
Solvent	Cleaning; e.g., metal; oil or toner stain.	-Fluoride-family hydrocarbon -Chlorine-family hydrocarbon -Alcohol	-Do not bring ner fire. -Procure locally. -Substitute: MEK
Heat-resisting grease	Lubrication; e.g., fixing drive areas.	-Mineral oil-family lithium soap -Molybdenum disulfide	-MO-138S -Tool No: CK-0427 (500 g/can)
Lubricating oil		-Mineral oil (paraffin-family)	-Tool No: CK-0524 (100 cc)
Lubricating oil	Lubrication; e.g., drive areas, friction areas.	-Silicone oil	-Tool No: CK-0551 (20 g)
Lubricating oil (EM-50L)	Lubrication; e.g., gears.	-Special oil -Special solid lubricating agent -Lithium soap	-Tool No: HY9-0007
Libricating oil	Lubrication; e.g., scanner rail.	-Silicone oil	-Tool No: FY9-6011 (50 cc)

Item	Uses	Composition	Remarks
Conducting grease	Lubrication; e.g., edge of secondary transfer roller, drum heater sliding area.	-Fluorine poly wthyl -Polytetra fluorune ethylene	-Tool No: FY9-6008 (75 g)
Lubricant	Lubricating:e.g., photosensitive drum cleaning blade.	Fluorine graphite	-Tool No: TKN-0480

Appendix

Contents

1 General Timing Chart.. A-1

Full color ....A- 1

Mono color A-2

2 General Circuit Diagram A-3

Signal Names.. A-3

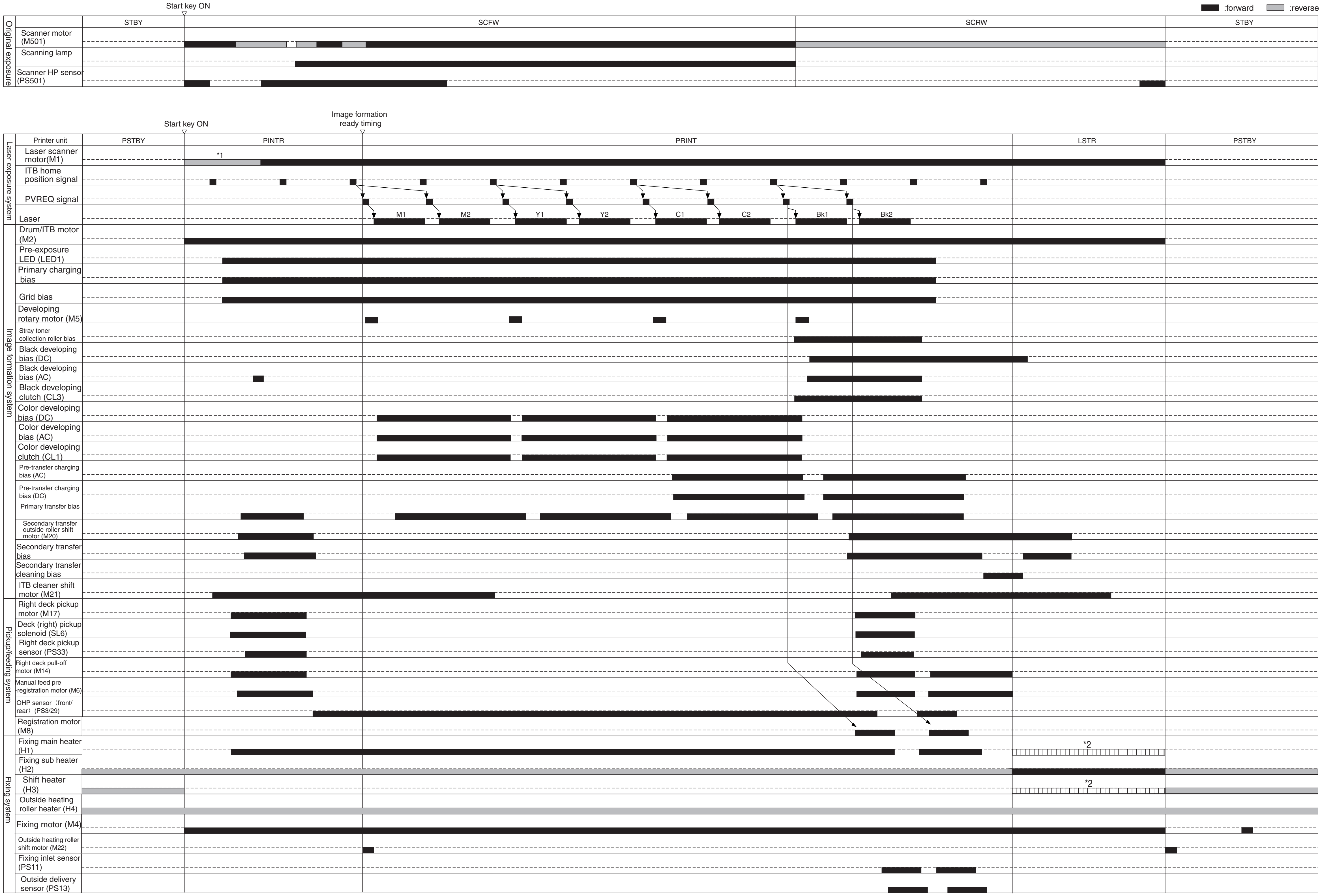
General Circuit Diagram A-7

General Timing Chart

Full color

<Conditions>

reading: book, 1 A4 original
printing: A4, plain paper, single-sided, full color, 2 prints

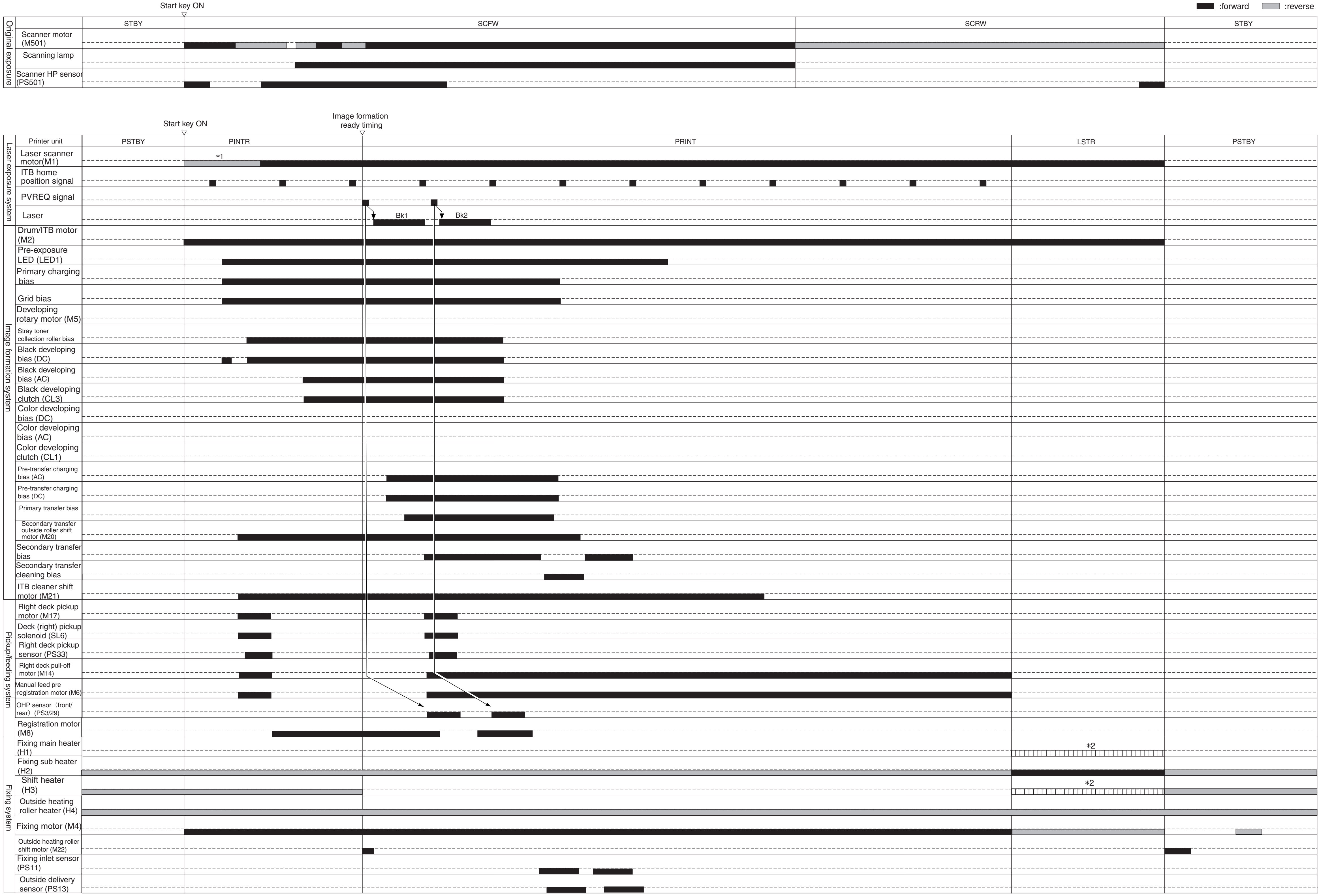

:forward
:reverse
Start key ON
Original exposure
STBY
SCFW
SCRW
STBY
Scanner motor (M501)
Scanning lamp
Scanner HP sensor (PS501)
Start key ON
Image formation ready timing
Printer unit
PSTBY
PINTR
PRINT
LSTR
PSTBY
Laser exposure system
Laser scanner motor(M1)
*1
ITB home position signal
PVREQ signal
Laser
M1
M2
Y1
Y2
C1
C2
Bk1
Bk2
Image formation system
Drum/ITB motor (M2)
Pre-exposure LED (LED1)
Primary charging bias
Grid bias
Developing rotary motor (M5)
Stray toner collection roller bias
Black developing bias (DC)
Black developing bias (AC)
Black developing clutch (CL3)
Color developing bias (DC)
Color developing bias (AC)
Color developing clutch (CL1)
Pre-transfer charging bias (AC)
Pre-transfer charging bias (DC)
Primary transfer bias
Secondary transfer outside roller shift motor (M20)
Secondary transfer bias
Secondary transfer cleaning bias
ITB cleaner shift motor (M21)
Pickup/feeding system
Right deck pickup motor (M17)
Deck (right) pickup solenoid (SL6)
Right deck pickup sensor (PS33)
Right deck pull-off motor (M14)
Manual feed pre registration motor (M6)
OHP sensor (front/rear) (PS3/29)
Registration motor (M8)
Fixing system
Fixing main heater (H1)
*2
Fixing sub heater (H2)
Shift heater (H3)
*2
Outside heating roller heater (H4)
Fixing motor (M4)
Outside heating roller shift motor (M22)
Fixing inlet sensor (PS11)
Outside delivery sensor (PS13)

*1: interval used to stabilize the rotation.
*2: interval during which the main heater and the sub heater are tuned on alternately.

F-1-1

Mono color

<Conditions>
reading: book mode, 1 A4 original
printing: A4, plain paper, single-sided, mono color, 2 prints



Start key ON
:forward
:reverse
STBY
SCFW
SCRW
STBY
Original exposure
Scanner motor (M501)
Scanning lamp
Scanner HP sensor (PS501)
Image formation ready timing
Start key ON
Printer unit
PSTBY
PINTR
PRINT
LSTR
PSTBY
Laser exposure system
Laser scanner motor(M1)
*1
ITB home position signal
PVREQ signal
Laser
Bk1
Bk2
Image formation system
Drum/ITB motor (M2)
Pre-exposure LED (LED1)
Primary charging bias
Grid bias
Developing rotary motor (M5)
Stray toner collection roller bias
Black developing bias (DC)
Black developing bias (AC)
Black developing clutch (CL3)
Color developing bias (DC)
Color developing bias (AC)
Color developing clutch (CL1)
Pre-transfer charging bias (AC)
Pre-transfer charging bias (DC)
Primary transfer bias
Secondary transfer outside roller shift motor (M20)
Secondary transfer bias
Secondary transfer cleaning bias
ITB cleaner shift motor (M21)
Pickup/feeding system
Right deck pickup motor (M17)
Deck (right) pickup solenoid (SL6)
Right deck pickup sensor (PS33)
Right deck pull-off motor (M14)
Manual feed pre registration motor (M6)
OHP sensor（front/rear）(PS3/29)
Registration motor (M8)
Fixing system
Fixing main heater (H1)
*2
Fixing sub heater (H2)
Shift heater (H3)
*2
Outside heating roller heater (H4)
Fixing motor (M4)
Outside heating roller shift motor (M22)
Fixing inlet sensor (PS11)
Outside delivery sensor (PS13)

*1: interval used to stabilize the rotation.
*2: interval during which the main heater and the sub heater are tuned on alternately.

F-1-2

General Circuit Diagram

Signal Names

List Of Signals

T-2-1

Abbreviation	Signal name
AFTER_TRNS_HP_SNS	post-transfer paper detection signal
ATR_REF	ATR sensor reference signal
ATR_SIG	ATR sensor signal
ATR_VCC	ATR power supply signal
ATR_VSS	ATR sensor light detection signal
ATRLED_ON	ATR sensor light emission signal
ATRSL_ON	ATR shutter solenoid drive signal
BK_CRG_DOOR_OPN	hopper cover open/closed detection signal
BK_DC_CONT	black development DC bias control signal
BK_DEV	black developing bias drive signal
BK_DEV_CL	black development clutch drive signal
BK_TNR_REMAIN	black toner level detection signal
CHD_CLK	side deck clock signal
CHO_RXD	side deck communication signal 0
CHO_RXLOAD*	side deck data request signal
CHO_TXD	side deck communication signal 1
CHO_TXEND*	side deck communication final signal
CHO_TXOUTEN*	side deck data enable signal
CL_CRG_DTC	color toner cartridge present/absent signal
CL_DEV	color developing bias drive signal
CL_TNR_REMAIN	color toner level detection signal (light-receiving segment)
CL_TNR_SNS_ON	color toner level detection signal (light-emitting segment)
CLR_DC_CONT	color developing DC bias control signal
CLR_DEV_CL	color developing clutch drive signal
CLR_TNR_SPLY_CL	color toner supply clutch drive signal
CMNCLK_A1	HVT1 high-voltage bias reference signal
CMNCLK_A1	HVT2 high-voltage bias reference signal
CNT0	laser control signal 0
CNT1	laser control signal 1
CRG_MTR_ON	black toner supply motor drive signal
CST_FEED_M_CLKA	cassette pickup motor drive signal A
CST_FEED_M_CLKAB	cassette pickup motor drive signal AB
CST_FEED_M_CLKB	cassette pickup motor drive signal B
CST_FEED_M_CLKBB	cassette pickup motor drive signal BB
CST_HEAT_ON	cassette heater drive signal
CUAL_FAN	delivery cooling fan 1 drive signal
CUAL_FAN_ERR	delivery cooling fan 1 error detection signal
D_LOAD	finisher start-up signal
DCP_FAN_LOK*	power supply fan lock detection signal
DCP_REM0	power supply remote signal 0
DCP_REM1	power supply remote signal 1
DCP_REM2	power supply remote signal 2
DCP_REM3	power supply remote signal 3
DEIL_FLAP_SL	delivery reversing solenoid drive signal
DEV_BK_AC_ON	black developing AC bias drive signal
DEV_BK_DC_ON	black developing DC bias drive signal
DEV_CL_AC_ON	color developing AC bias drive signal
DEV_CL_DC_ON	color developing DC bias drive signal
DEV_MTR_CLK	developing motor reference signal
DEV_MTR_CW/CCW	developing motor drive detection switchover signal
DEV_MTR_ID	development motor identification signal
DEV_MTR_LOK*	development motor lock detention signal
DEV_MTR_ON	development motor drive signal
DEV_MTR_SEL	development motor speed switchover signal
DEVBKCLK1	black developing bias reference signal A
DEVCLCLK_A1	color developing bias reference signal A
DEVCLCLK_B1	color developing bias reference signal B
DRAM_HP_SNS	drum HP detection signal
DRUM_HEAT_ON	drum heater drive signal
DRUM_MTR_BRAKE	drum/ITB motor drive direction switchover signal
DRUM_MTR_CLK	drum/ITB motor reference signal
DRUM_MTR_ID	drum/ITB motor identified signal
DRUM_MTR_LOK*	drum/ITB motor lock detection signal
DRUM_MTR_ON	drum/ITB motor drive signal
DRUM_MTR_SEL	drum/ITB motor speed switchover signal
DUP_FEED_SNS	duplexing left detection signal
DUPLEX_CENTER_M_CLK_A	depleting middle motor drive signal A
DUPLEX_CENTER_M_CLK_AB	duplexing middle motor drive signal AB
DUPLEX_CENTER_M_CLK_B	duplexing middle motor drive signal B
DUPLEX_CENTER_M_CLK_BB	duplexing middle motor drive signal BB
DUPLEX_LEFT_M_CLK_A	duplexing left motor drive signal A
DUPLEX_LEFT_M_CLK_AB	duplexing left motor drive signal AB
DUPLEX_LEFT_M_CLK_B	duplexing left motor drive signal B
DUPLEX_LEFT_M_CLK_BB	duplexing left motor drive signal BB
DUPLEX_REV_M_CLK_A	duplexing reversal motor drive signal A
DUPLEX_REV_M_CLK_AB	duplexing reversal motor drive signal AB
DUPLEX_REV_M_CLK_B	duplexing reversal motor drive signal B
DUPLEX_REV_M_CLK_BB	duplexing reversal motor drive signal BB
DUPLEX_RIGHT_M_CLK_A	duplexing right motor drive signal A

Abbreviation	Signal name
DUPLEX_RIGHT_M_CLK_AB	duplexing right motor drive signal AB
DUPLEX_RIGHT_M_CLK_B	duplexing right motor drive signal B
DUPLEX_RIGHT_M_CLK_BB	duplexing right motor drive signal BB
ELIMINATE	static eliminator bias drive signal
ENV_HUM_CLK	environment sensor reference signal
ENV_TEMP	environment sensor detection signal
EPC_SIG	potential sensor reference signal
EPC_SNS_ON	potential sensor detection signal
EX_FIX_HP_SNS	outside heating roller HP detection signal
EX_FIX_P_MTR_A	outside heating roller shift motor drive signal A
EX_FIX_P_MTR_A*	outside heating roller shift motor drive signal A*
EX_FIX_P_MTR_B	outside heating roller shift motor drive signal B
EX_FIX_P_MTR_B*	outside heating roller shift motor drive signal B*
EX_FIX_THM_EDGE_IN	outside heating sub thermistor detection signal
EX_FIX_THM_IN	outside heating main thermistor detection signal
EX-HEAT-ON	outside heating roller heater drive signal
EXP_LED	pre-exposure LED drive signal
EX-TR-ERR	outside heating roller heater error signal
FEED_FAN_4	feed fan 4 drive signal
FEED_FAN1	feed fan 1 drive signal
FEED_FAN1_ERR	feed fan 1 error detection signal
FEED_FAN2	feed fan 2 drive signal
FEED_FAN2_ERR	feed fan 2 error detection signal
FEED_FAN3	feed fan 3 drive signal
FEED_FAN3_ERR	feed fan 3 error detection signal
FEED_FAN4_ERR	feed fan 4 error detection signal
FIN_FAN	exhaust heat cooling fan 2 drive signal
FIN_FAN_LOK*	exhaust heat cooling fan 2 lock detection signal
FIRST_TRN	primary transfer bias drive signal
FIX_ENT_SNS	fixing inlet detention signal
FIX_FAN	fixing exhaust fan drive signal

Abbreviation	Signal name
FIX_FAN_LOK*	fixing exhaust fan lock detection signal
FIX_MTR_BRAKE	fixing motor stop signal
FIX_MTR_CLK	fixing motor reference signal
FIX_MTR_ID	fixing motor identification signal
FIX_MTR_LOK*	fixing motor lock detection signal
FIX_MTR_ON	fixing motor drive signal
FIX_MTR_SEL	fixing motor selection signal
FIX_WEB_REMAIN	fixing web length detection signal
FIX_WEB_SL	web solenoid drive signal
FRONT_DOOR_OPN	front cover detection signal
FSR_UNIT_CNCT*	fixing assembly present/absent detection signal
GRID_CONT	grid bias control signal
HOP_MTR_0	hopper stirring motor drive signal 1
HOP_MTR_1	hopper stirring motor drive signal 0
HV_RMT	high-voltage bias remote signal
HV_RMT	HVT 3 enable signal
IN_DELI_SNS	inside delivery detection signal
ITB_CLN_HP_SNS	ITB cleaner HP detection signal
ITB_CLN_P_MTR_A	ITB cleaner shift motor drive signal A
ITB_CLN_P_MTR_A*	ITB cleaner shift motor drive signal/A
ITB_CLN_P_MTR_B	ITB cleaner shift motor drive signal B
ITB_CLN_P_MTR_B*	ITB cleaner shift motor drive signal/B
ITOP_SNS_A	ITB HP sensor detection signal A
ITOP_SNS_B	ITB HP sensor detection signal B
JOIN_SNS	vertical path confluence detection signal
L_DECK_DTC	left deck paper detection signal
L_DECK_EXIT_SL	left deck confluence solenoid drive signal
L_DECK_FEED_SNS	left deck pickup detection signal
L_DECK_LIFT	left deck lifter motor drive signal
L_DECK_LIMIT_SNS	left deck limit detection signal
L_DECK_M_CLKA	left deck pickup motor drive signal A

Abbreviation	Signal name
L_DECK_M_CLKAB	left deck pickup motor drive signal AB
L_DECK_M_CLKB	left deck pickup motor drive signal B
L_DECK_M_CLKBB	left deck pickup motor drive signal BB
L_DECK_PAP_HIGHT_SNS	left deck lifter detection signal
L_DECK_PAP_SNS	left deck paper detection signal
L_DECK_REMAIN_SNS0	left deck paper level detection signal A
L_DECK_REMAIN_SNS1	left deck paper level detection signal B
L_DECK_SL	left deck pickup solenoid drive signal
LDPSEL	laser power selection signal
LO_CST_FEED_SNS	cassette 4 pickup detection signal
LO_CST_LIMIT_SNS	cassette 4 limit detention signal
LO_CST_PAP_HIGHT_SNS	cassette 4 lifter detection signal
LO_CST_PAP_SNS	cassette 4 paper detection signal
LO_CST_REMAIN_SNS0	cassette 4 paper level detection signal A
LO_CST_REMAIN_SNS1	cassette 4 paper level detection signal B
LO_CST_SIZE0	cassette 4 paper size detection signal 0
LO_CST_SIZE1	cassette 4 paper size detection signal 1
LO_CST_SIZE2	cassette 4 paper size detection signal 2
LO_CST_SIZE3	cassette 4 paper size detection signal 3
LO_CST_SIZE4	cassette 4 paper size detection signal 4
LO_CST_SL	cassette 4 pickup solenoid drive signal
LOW_CST_LIFT	cassette 4 lifter motor drive signal
MAIN_THM_EDGE_IN	fixing sub thermistor detection signal
MAIN_THM_IN	fixing main thermistor detection signal
MAIN-HEAT-ON	fixing main heater drive signal
MAIN-TR-ERR	fixing main heater error signal
MLT_LAST_PAP_SNS	last sheet detection signal

Abbreviation	Signal name
MLT_PAP_SNS	manual feed paper detection signal
MLT_PAP_WIDTH	manual feed paper width detection signal
MLT_SL	manual feed pickup solenoid drive signal
MLT_TRAY_OPN	manual feed unit open/closed detection signal
MODE	finisher mode switchover signal
OHP_LED0	transparency sensor (front) light emission signal
OHP_LED1	transparency sensor (rear) light emission signal
OHP_SNS0	transparency sensor (rear) light reception signal
OHP_SNS1	transparency sensor (front) light reception signal
OUT_DELI_MTR_A	outside delivery motor drive signal A
OUT_DELI_MTR_A*	outside delivery motor drive signal A*
OUT_DELI_MTR_B	outside delivery motor drive signal B
OUT_DELI_MTR_B*	outside delivery motor drive signal B*
OUT_DELI_SNS	outside delivery paper detection signal
PAP_STAGNATE_SNS	left deck stationary paper detection signal
PATCH_LED_ON	patch image read sensor light emission signal
PATCH_LED_ON	patch image read sensor reference signal
PATCH_LED_REF	patch sensor shutter solenoid drive signal
PATCH_SHUT_SL	patch sensor shutter solenoid drive signal
PATCH_VOP	patch image read sensor detention signal P
PATCH_VOS	patch image read sensor detention signal S
PD_MTR_CLK	side deck clock signal 1
PKIT_FAN	controller cooling fan dire signal
PKIT_FAN_LOK*	controller cooling fan lock detection signal
POST	pre-transfer bias drive signal
POST_AC_ON	pre-transfer bias AC drive signal
POST_CLN_MTR0	pre-transfer charging wire cleaning motor drive signal 0
POST_CLN_MTR1	pre-transfer charging wire cleaning motor drive signal 1
POST_DC_ON	pre-transfer bias DC drive signal
POSTCLK_A1	pre-transfer bias reference signal A

Abbreviation	Signal name
POSTCLK_B1	pre-transfer bias reference signal B
POSTCONT	pre-transfer bias control signal
PRE_REGI_MTR_A	manual feed pre-registration motor drive signal A
PRE_REGI_MTR_A*	manual feed pre-registration motor drive signal A*
PRE_REGI_MTR_B	manual feed pre-registration motor drive signal B
PRE_REGI_MTR_B*	manual feed pre-registration motor drive signal B*
PRE_REGI_SNS	pre-registration paper detection signal
PRESS-HEAT-ON	pressure heater drive signal
PRESS-TR-ERR	pressure heater error signal
PRIM_CLN_MTR0	primary charging wire cleaning motor drive signal 0
PRIM_CLN_MTR1	primary charging wire cleaning motor drive signal 1
PRIM_CONT	primary charging bias control signal
PRIM_EX_FAN	primary charging exhaust fan drive signal
PRIM_EX_FAN_LOK*	primary charging exhaust fan lock signal
PRIM_IN_FAN	primary charging suction fan drive signal
PRIM_IN_FAN_LOK*	primary charging suction fan lock detection
PRIM_ON	primary charging bias drive signal
PRIMARY	primary charging bias drive signal
PRS_THM_EDGE_IN	pressure sub thermistor detection signal
PRS_THM_IN	pressure main thermistor detection signal
R_DECK_DTC	right deck paper detection signal
R_DECK_FEED_SNS	right deck pickup detection signal
R_DECK_LIFT	right deck lifter motor drive signal
R_DECK_LIMIT_SNS	right deck limit detection signal
R_DECK_M_CLKA	right deck pickup motor drive signal A
R_DECK_M_CLKAＢ	right deck pickup motor drive signal AB
R_DECK_M_CLKＢ	right deck pickup motor drive signal B
R_DECK_M_CLKBB	right deck pickup motor drive signal BB
R_DECK_PAP_HIGHT_SNS	right deck lifter detection signal

Abbreviation	Signal name
R_DECK_PAP_SNS	right deck paper detection signal
R_DECK_PULL_M_CLKA	right deck pull-off motor drive signal A
R_DECK_PULL_M_CLKAB	right deck pull-off motor drive signal AB
R_DECK_PULL_M_CLKB	right deck pull-off motor drive signal B
R_DECK_PULL_M_CLKBB	right deck pull-off motor drive signal BB
R_DECK_REMAIN_SNS0	right deck paper level detection signal B
R_DECK_REMAIN_SNS1	right deck paper level detection signal A
R_DECK_SL	right deck pickup solenoid drive signal
R_LOW_DOOR_OPN	lower right cover open/closed detection signal
RE_FEED_SNS	duplexing confluence detection signal
REAL_BD*	BD detection signal
REGI_DRIVE_M_CLK_A	registration motor drive signal A
REGI_DRIVE_M_CLK_AB	registration motor drive signal AB
REGI_DRIVE_M_CLK_B	registration motor drive signal B
REGI_DRIVE_M_CLK_BB	registration motor drive signal BB
RELAY_ON	relay drive signal
REV_ALIENATE_SL	reversal interval solenoid drive signal
REV_SNS	reversal detection signal
REV_TATE_PAS_SNS	reversal vertical path detention signal
ROT_MTR_A	developing rotary motor drive signal A
ROT_MTR_A*	developing rotary motor drive signal A*
ROT_MTR_B	developing rotary motor drive signal A*
ROT_MTR_B*	developing rotary motor drive signal B*
ROTARY_HP_SNS	developing rotary HP detection signal
ROTARY_SL	developing rotary fixing solenoid drive signal

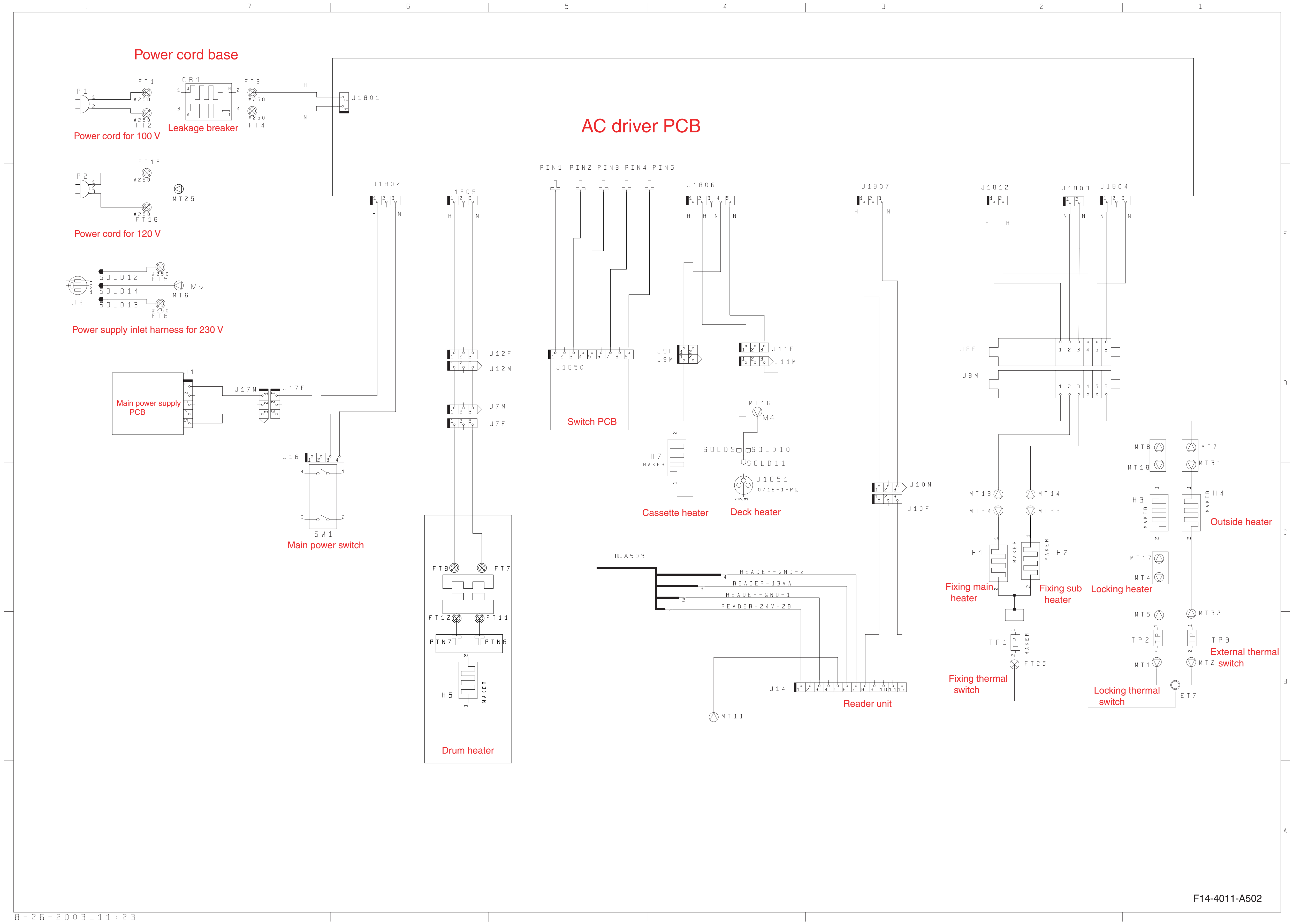
Abbreviation	Signal name
ROTARY_SL_SNS	developing rotary fixing detection signal
RSET	finisher reset signal
SCN_ACC*	scanner motor acceleration signal
SCN_DEC*	scanner motor deceleration signal
SCN_FG_IN*	scanner motor speed detection signal
SEC_ROLL_PRESS_M_A	secondary transfer roller shift motor drive signal A
SEC_ROLL_PRESS_M_A*	secondary roller shift motor drive signal A*
SEC_ROLL_PRESS_M_B	secondary transfer roller shift motor drive signal B
SEC_ROLL_PRESS_M_B*	secondary transfer roller shift motor drive signal B*
SEC_TRNS_HP_SNS	secondary transfer roller HP detection signal
SECOND_TR	secondary transfer bias drive signal
SFTTRAY_CCW	shift tray motor drive signal 0
SFTTRAY_CNCT	shift tray connection detection signal
SFTTRAY_CW	shift tray motor drive signal 1
SFTTRAY_FULL_ON	shift tray full detection signal 1
SFTTRAY_L_HP	shift tray left HP detection signal
SFTTRAY_PAP_FULL	shift tray full detection signal 0
SFTTRAY_PAP_SNS	shift tray paper detection signal
SFTTRAY_R_HP	shift tray right HP detector signal
STPC_RXD	finisher communication signal 0
STPC_TXD	finisher communication signal 1
SUB_HOP_REMAIN	hopper toner level detection signal
SUB-HEAT-ON	fixing sub heater drive signal
SUB-TR-ERR	fixing sub heater error signal
TR_REV_BIAS	secondary transfer reversal bias drive signal
TR1_CRT_SEL	primary transfer current selection signal
TR1_ON	primary transfer bias drive signal
TR1CONT	primary transfer bias control signal
TR1CONTN	primary transfer reverse bias control signal

Abbreviation	Signal name
TR1CRTCONT	primary transfer current control signal
TR1ELM_ON	primary transfer static eliminator bias drive signal
TR1ELM_TRN	primary transfer static eliminator bias drive signal
TR1ELMCONT	primary transfer static eliminator bias control signal
TR1RVSEL	primary transfer reverse bias selection signal
TRNS1_DC	primary transfer DC bias drive signal
UP_CST_FEED_SL	cassettes 3 pickup solenoid drive signal
UP_CST_FEED_SNS	cassette 3 pickup solenoid drive signal
UP_CST_LIFT	cassette 3 lifter motor drive signal
UP_CST_LIMIT_SNS	cassette 3 limit detection signal
UP_CST_PAP_HIGHT_SNS5	cassette 3 lifter detection signal
UP_CST_PAP_SNS	cassette 3 paper detection signal
UP_CST_REMAIN_SNS0	cassette 3 paper level detection signal A
UP_CST_REMAIN_SNS1	cassette 3 paper level detection signal B
UP_CST_SIZE0	cassette 3 paper size detection signal 0
UP_CST_SIZE1	cassette 3 paper size detection signal 1
UP_CST_SIZE2	cassette 3 paper size detection signal 2
UP_CST_SIZE3	cassette 3 paper size detection signal 3
UP_CST_SIZE4	cassette 3 paper size detection signal 4
V_PASS_LOW_M_CLKA	vertical path motor drive signal A
V_PASS_LOW_M_CLKAB	vertical path motor drive signal AB
V_PASS_LOW_M_CLKB	vertical path motor drive signal B
V_PASS_LOW_M_CLKBB	vertical path motor drive signal BB
VDO	video signal 0
VDO*	video signal 1
VPASS_SNS_0	vertical path 0 detection signal
VPASS_SNS1	vertical path 1 paper detection signal
VPASS_SNS2	vertical path 2 paper detection signal

Abbreviation	Signal name
VPASS_SNS3	vertical path 3 paper detection signal
VPASS_SNS4	vertical path 4 paper detection signal
WASTE_TNR_ERRO	waste toner screw lock detection signal
YOKO_REGI_CLK_A	laser scanner motor drive signal A
YOKO_REGI_CLK_A*	laser scanner motor drive signal A*
YOKO_REGI_CLK_B	laser scanner motor drive signal B
YOKO_REGI_CLK_B*	laser scanner motor drive signal B*
YOKO_REGI_SNS	horizontal registration detection signal
ZERO_CROSS	zero-cross detection signal

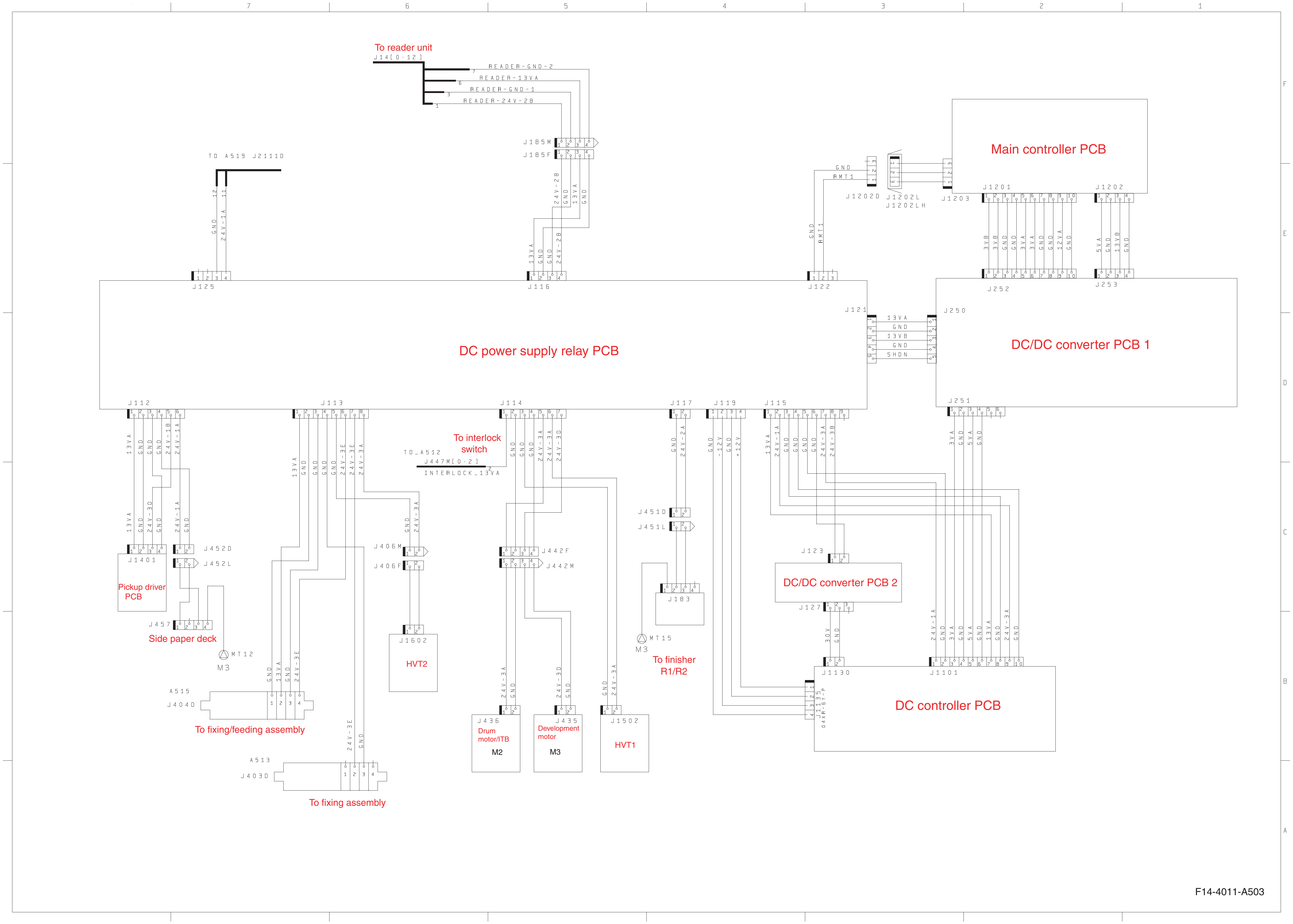
General Circuit Diagram

General Circuit Diagram 1 (Printer)


Power cord base
P1
FT1
#250
FT2
CB1
FT3
FT4
J1801
Power cord for 100 V
Leakage breaker
AC driver PCB
P2
FT15
MT25
FT16
Power cord for 120 V
J3
SOLD12
SOLD14
SOLD13
FT5
M5
MT6
FT6
Power supply inlet harness for 230 V
PIN1 PIN2 PIN3 PIN4 PIN5
J1802
J1805
J1806
J1807
J1812
J1803
J1804
J1
Main power supply PCB
J17M
J17F
J16
SW1
Main power switch
J12F
J12M
J7M
J7F
J1850
Switch PCB
J9F
J9M
J11F
J11M
MT16
M4
SOLD9
SOLD10
SOLD11
J1851
0718-1-PQ
H7
MAKER
Cassette heater
Deck heater
J8F
J8M
J10M
J10F
FT8
FT7
FT12
FT11
PIN7
PIN6
H5
Drum heater
11.A503
READER-GND-2
READER-13VA
READER-GND-1
READER-24V-28
J14
Reader unit
MT11
MT13
MT14
MT34
MT33
H1
H2
Fixing main heater
Fixing sub heater
TP1
FT25
Fixing thermal switch
MT8
MT18
MT7
MT31
H3
H4
Outside heater
MT17
MT4
Locking heater
MT5
MT32
TP2
TP3
External thermal switch
MT1
MT2
ET7
Locking thermal switch
F14-4011-A502
8-26-2003_11:23

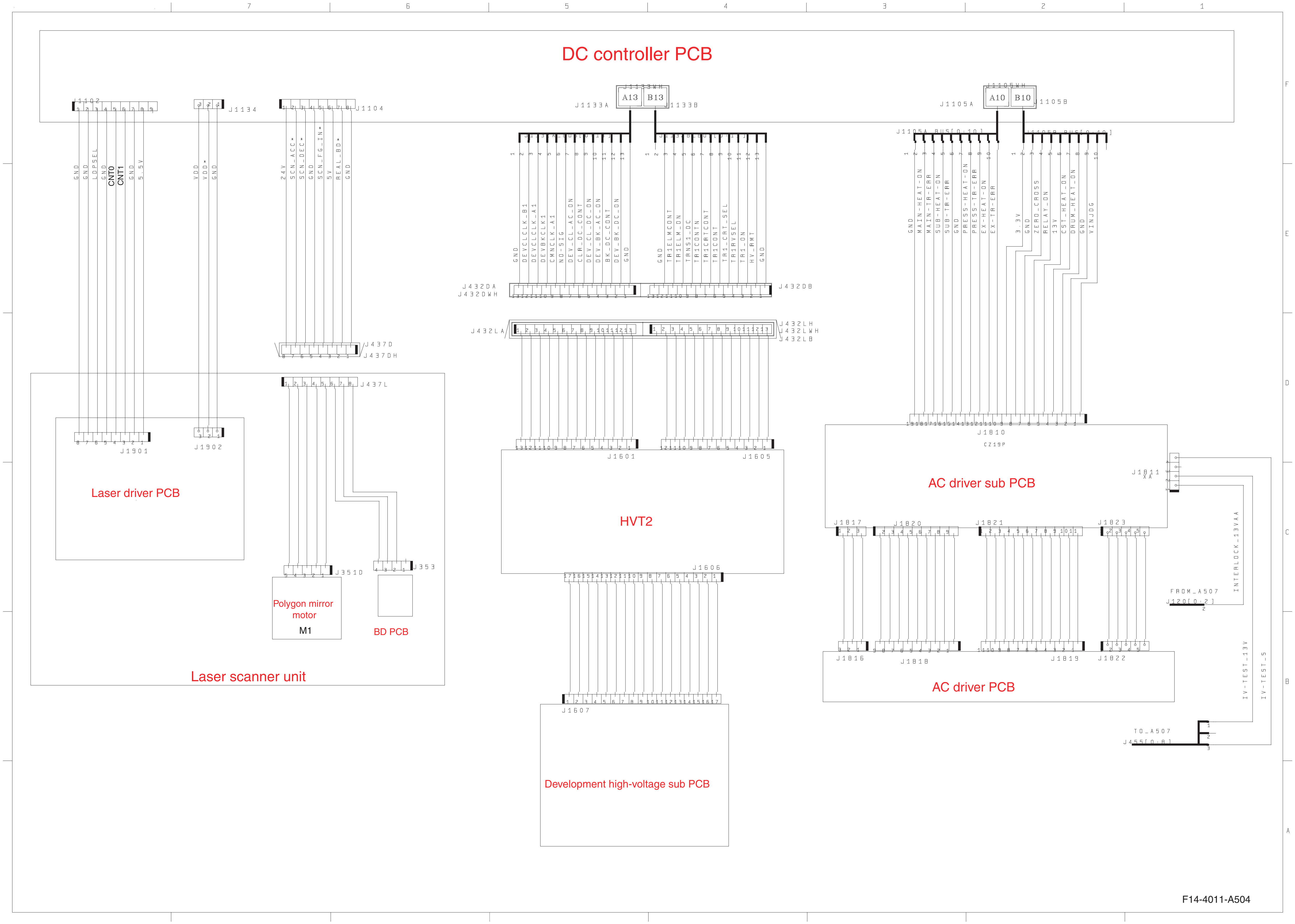
F-2-1

General Circuit Diagram 2 (Printer)


To reader unit
J14[0:12]
READER-GND-2
READER-13VA
READER-GND-1
READER-24V-2B
J185M
J185F
TO A519 J2111D
Main controller PCB
J1201
J1202
J1202D
J1202L
J1202LH
J1203
GND
RMT1
J125
J116
J122
J121
J250
J252
J253
DC power supply relay PCB
DC/DC converter PCB 1
13VA
GND
13VB
SHDN
J112
J113
J114
J117
J119
J115
J251
To interlock switch
TO_A512
J447M[0:2]
INTERLOCK_13VA
J452D
J452L
J1401
Pickup driver PCB
J457
Side paper deck
MT12
M3
J406M
J406F
J1602
HVT2
J442F
J442M
J451D
J451L
J183
MT15
M3
To finisher R1/R2
J123
DC/DC converter PCB 2
J127
J1130
J1101
J1135
DC controller PCB
A515
J404D
To fixing/feeding assembly
A513
J403D
To fixing assembly
J436
Drum motor/ITB
M2
J435
Development motor
M3
J1502
HVT1
F14-4011-A503

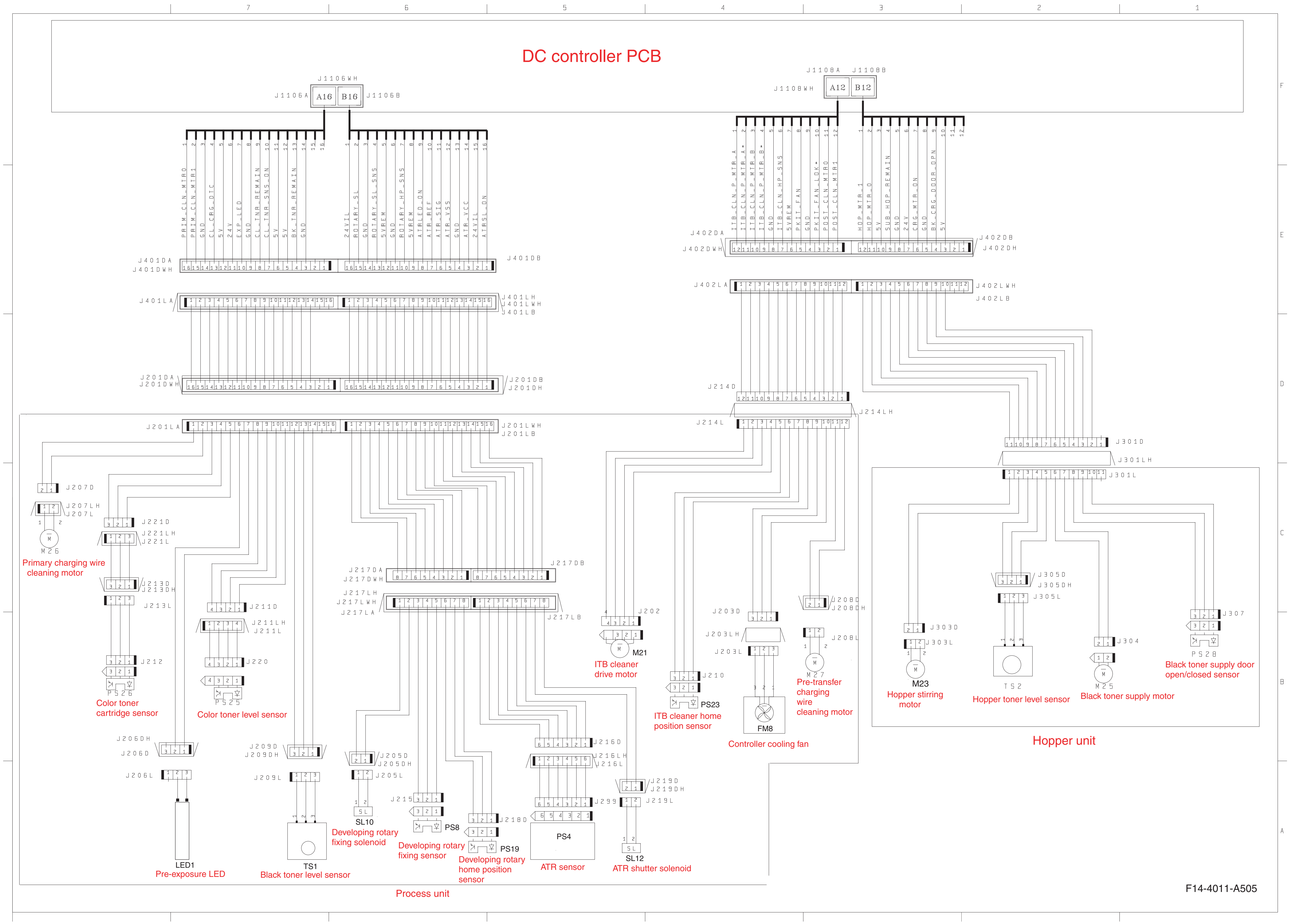
F-2-2

General Circuit Diagram 3 (Printer)


DC controller PCB
J1102
GND
GND
LDPSEL
GND
CNT0
CNT1
GND
5.5V
J1134
VDD
VDD*
GND
J1104
24V
SCN_ACC*
SCN_DEC*
GND
SCN_FG_IN*
5V
REAL_BD*
GND
J1133WH
A13
B13
J1133A
J1133B
GND
DEVCLCLK_B1
DEVCLCLK_A1
DEVBKCLK1
CMNCLK_A1
NO-SIG
DEV_CL_AC_ON
CLR_DC_CONT
DEV_CL_DC_ON
DEV_BK_AC_ON
BK_DC_CONT
DEV_BK_DC_ON
GND
GND
TR1ELMCONT
TR1ELM_ON
TRNS1_DC
TR1CONTN
TR1CRTCONT
TR1CONT
TR1_CRT_SEL
TR1RVSEL
TR1_ON
HV_RMT
GND
J432DA
J432DWH
J432DB
J432LA
J432LH
J432LWH
J432LB
J1105WH
A10
B10
J1105A
J1105B
J1105A BUS[0:10]
J1105B BUS[0:10]
GND
MAIN-HEAT-ON
MAIN-TR-ERR
SUB-HEAT-ON
SUB-TR-ERR
GND
PRESS-HEAT-ON
PRESS-TR-ERR
EX-HEAT-ON
EX-TR-ERR
3.3V
GND
ZERO_CROSS
RELAY_ON
13V
CST_HEAT_ON
DRUM_HEAT_ON
GND
VINJDG
J437D
J437DH
J437L
J1901
J1902
Laser driver PCB
J3510
J353
Polygon mirror motor
M1
BD PCB
Laser scanner unit
J1601
J1605
HVT2
J1606
J1607
Development high-voltage sub PCB
J1810
CZ19P
AC driver sub PCB
J1811
XA
J1817
J1820
J1821
J1823
INTERLOCK_13VAA
FROM_A507
J120[0:2]
J1816
J1818
J1819
J1822
AC driver PCB
IV-TEST_13V
IV-TEST_5
TO_A507
J455[0:8]
F14-4011-A504

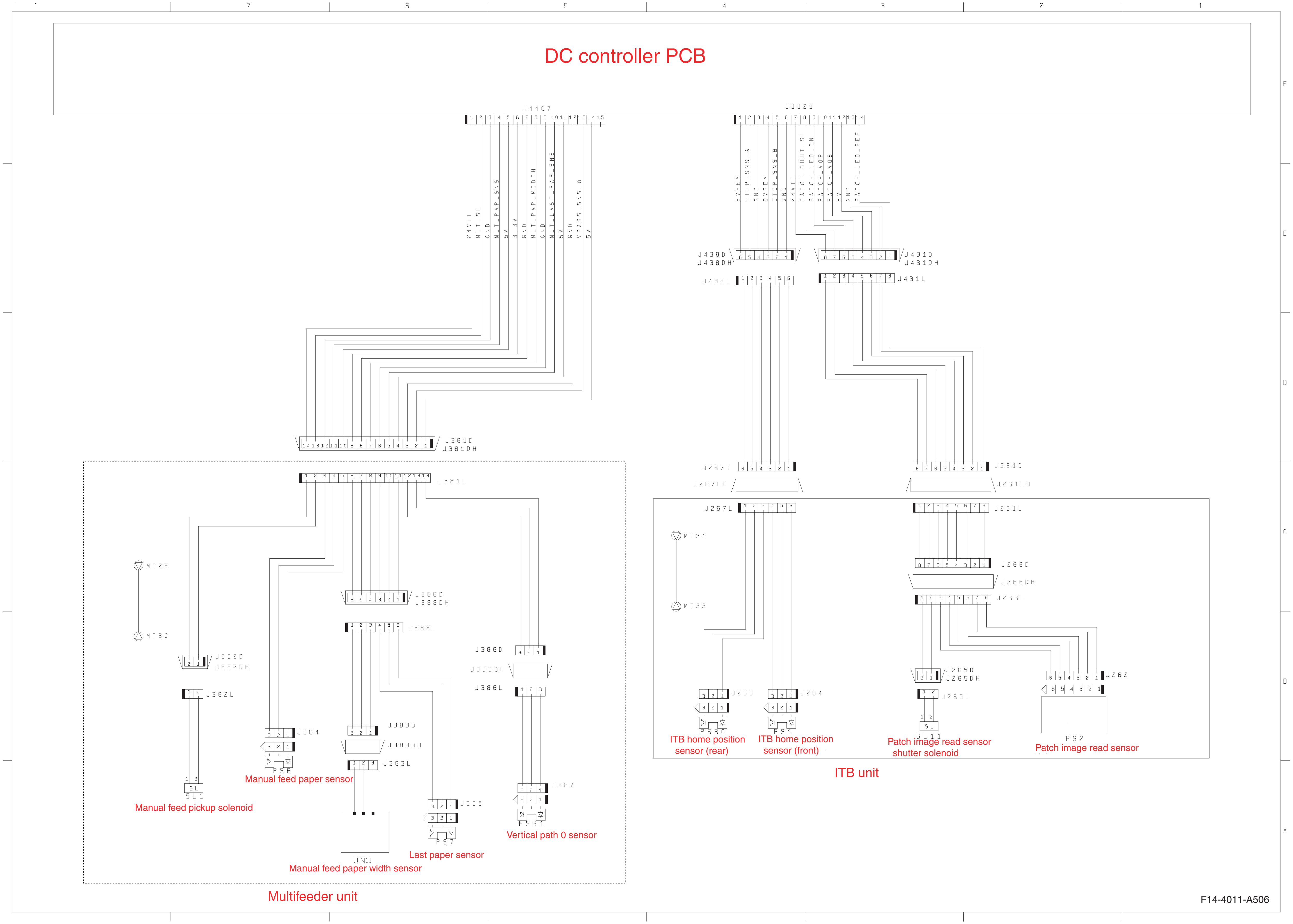
F-2-3

General Circuit Diagram 4 (Printer)


7
6
5
4
3
2
1
F
E
D
C
B
A
DC controller PCB
J1106WH
J1106A
A16
B16
J1106B
PRIM_CLN_MTR0
PRIM_CLN_MTR1
GND
CL_CRG_DTC
5V
24V
EXP_LED
GND
CL_TNR_REMAIN
CL_TNR_SNS_ON
5V
5V
BK_TNR_REMAIN
GND
24VIL
ROTARY_SL
GND
ROTARY_SL_SNS
5VREM
GND
ROTARY_HP_SNS
5VREM
ATRLED_ON
ATR_REF
ATR_SIG
ATR_VSS
GND
ATR_VCC
24VIL
ATRSL_ON
J1108A
J1108B
J1108WH
A12
B12
ITB_CLN_P_MTR_A
ITB_CLN_P_MTR_A*
ITB_CLN_P_MTR_B
ITB_CLN_P_MTR_B*
GND
ITB_CLN_HP_SNS
5VREM
PKIT_FAN
GND
PKIT_FAN_LOK*
POST_CLN_MTR0
POST_CLN_MTR1
HOP_MTR_1
HOP_MTR_0
5V
SUB_HOP_REMAIN
GND
24V
CRG_MTR_ON
GND
BK_CRG_DOOR_OPN
5V
J401DA
J401DWH
J401DB
J401LA
J401LH
J401LWH
J401LB
J402DA
J402DWH
J402DB
J402DH
J402LA
J402LWH
J402LB
J201DA
J201DWH
J201DB
J201DH
J201LA
J201LWH
J201LB
J214D
J214LH
J214L
J301D
J301LH
J301L
J207D
J207LH
J207L
M26
Primary charging wire cleaning motor
J221D
J221LH
J221L
J213D
J213DH
J213L
J212
PS26
Color toner cartridge sensor
J211D
J211LH
J211L
J220
PS25
Color toner level sensor
J206DH
J206D
J206L
LED1
Pre-exposure LED
J209D
J209DH
J209L
TS1
Black toner level sensor
J217DA
J217DWH
J217DB
J217LH
J217LWH
J217LA
J217LB
J205D
J205DH
J205L
SL10
Developing rotary fixing solenoid
J215
PS8
Developing rotary fixing sensor
J218D
PS19
Developing rotary home position sensor
J216D
J216LH
J216L
J299
PS4
ATR sensor
J219D
J219DH
J219L
SL12
ATR shutter solenoid
Process unit
J202
M21
ITB cleaner drive motor
J210
PS23
ITB cleaner home position sensor
J203D
J203LH
J203L
FM8
Controller cooling fan
J208D
J208DH
J208L
M27
Pre-transfer charging wire cleaning motor
J303D
J303L
M23
Hopper stirring motor
J305D
J305DH
J305L
TS2
Hopper toner level sensor
J304
M25
Black toner supply motor
J307
PS28
Black toner supply door open/closed sensor
Hopper unit
F14-4011-A505

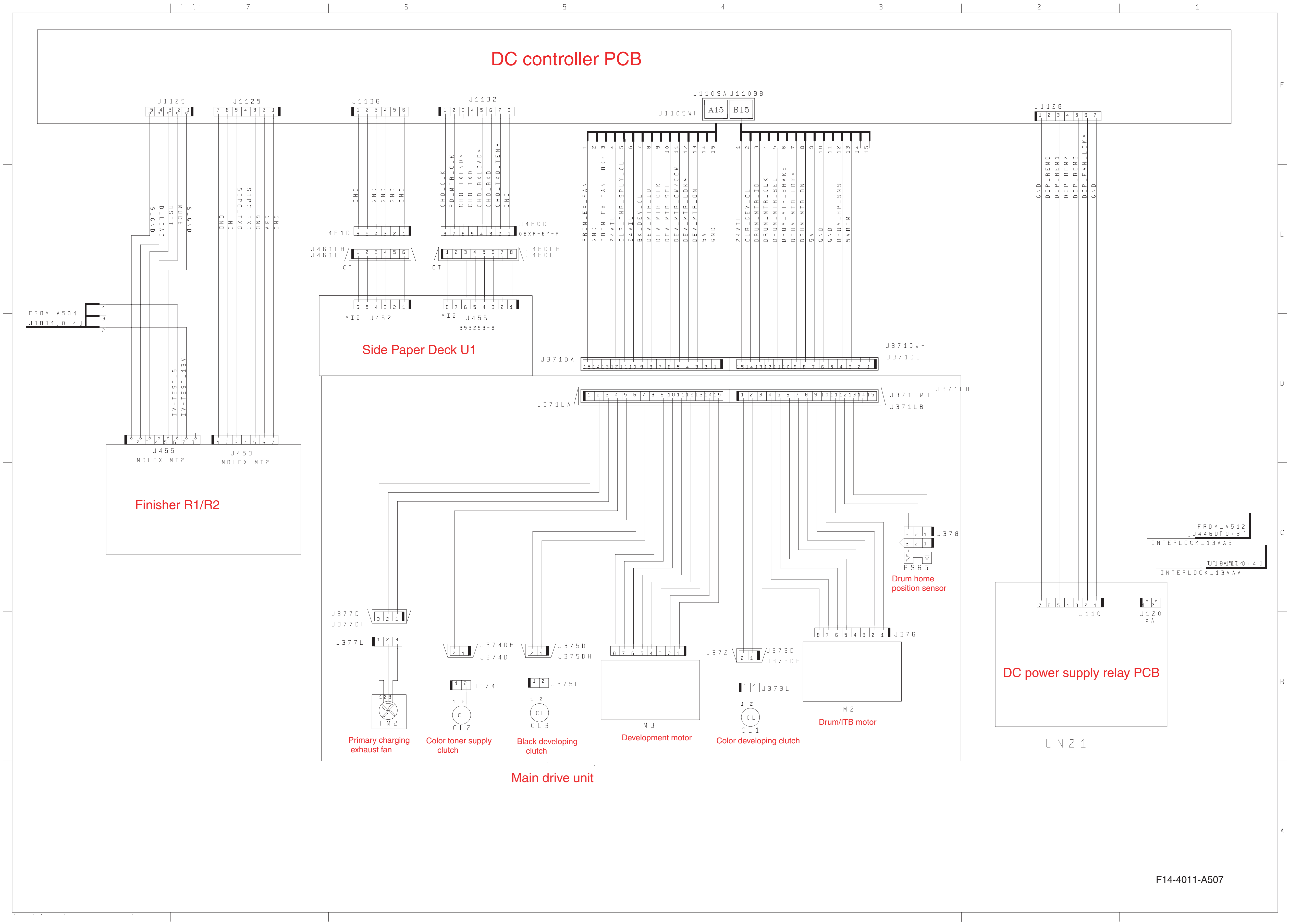
F-2-4

General Circuit Diagram 5 (Printer)


7
6
5
4
3
2
1
F
E
D
C
B
A
DC controller PCB
J1107
24VIL
MLT_SL
GND
MLT_PAP_SNS
5V
3.3V
GND
MLT_PAP_WIDTH
GND
MLT_LAST_PAP_SNS
5V
GND
VPASS_SNS_0
5V
J1121
5VREM
ITOP_SNS_A
GND
5VREM
ITOP_SNS_B
GND
24VIL
PATCH_SHUT_SL
PATCH_LED_ON
PATCH_VOP
PATCH_VOS
5V
GND
PATCH_LED_REF
J438D
J438DH
J431D
J431DH
J438L
J431L
J381D
J381DH
J381L
MT29
MT30
J382D
J382DH
J382L
SL1
Manual feed pickup solenoid
J384
PS6
Manual feed paper sensor
J388D
J388DH
J388L
J383D
J383DH
J383L
UN13
Manual feed paper width sensor
J385
PS7
Last paper sensor
J386D
J386DH
J386L
J387
PS31
Vertical path 0 sensor
Multifeeder unit
J267D
J267LH
J267L
J261D
J261LH
J261L
MT21
MT22
J263
PS30
ITB home position sensor (rear)
J264
PS1
ITB home position sensor (front)
J266D
J266DH
J266L
J265D
J265DH
J265L
SL11
Patch image read sensor shutter solenoid
J262
PS2
Patch image read sensor
ITB unit
F14-4011-A506

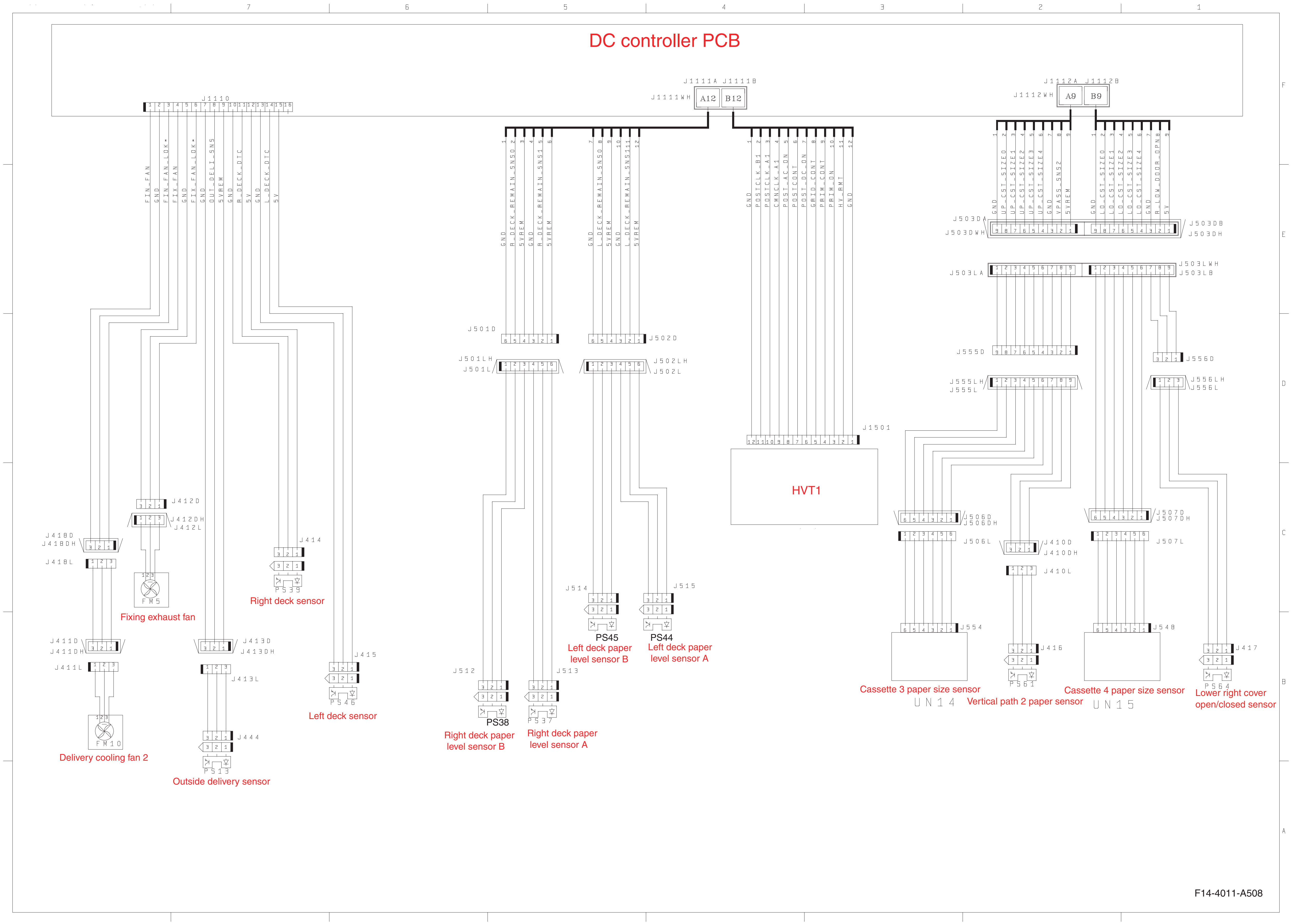
F-2-5

General Circuit Diagram 6 (Printer)


DC controller PCB
J1129
S_GND
D_LOAD
RSET
MODE
S_GND
J1125
GND
NC
SIPC_TXD
STPC_RXD
GND
13V
GND
J1136
GND
J1132
CHO_CLK
PD_MTR_CLK
CHO_TXEND*
CHO_TXD
CHO_RXLOAD*
CHO_RXD
CHO_TXOUTEN*
GND
J461D
J460D
08XR-6Y-P
J461LH
J461L
J460LH
J460L
CT
MI2 J462
MI2 J456
353293-8
Side Paper Deck U1
J1109A J1109B
J1109WH
A15
B15
PRIM_EX_FAN
GND
PRIM_EX_FAN_LOK*
24VIL
CLR_TNR_SPLY_CL
24VIL
BK_DEV_CL
DEV_MTR_ID
DEV_MTR_CLK
DEV_MTR_SEL
DEV_MTR_CW/CCW
DEV_MTR_LOK*
DEV_MTR_ON
5V
GND
24VIL
CLR_DEV_CL
DRUM_MTR_ID
DRUM_MTR_CLK
DRUM_MTR_SEL
DRUM_MTR_BRAKE
DRUM_MTR_LOK*
DRUM_MTR_ON
5V
GND
GND
DRUM_HP_SNS
5VREM
J1128
GND
DCP_REM0
DCP_REM1
DCP_REM2
DCP_REM3
DCP_FAN_LOK*
GND
FROM_A504
J1811[0:4]
1V-TEST_5V
1V-TEST_13V
J455
MOLEX_MI2
J459
MOLEX_MI2
Finisher R1/R2
J3710A
J3710WH
J3710B
J371LA
J371LWH
J371LB
J371LH
J378
P565
Drum home position sensor
J377D
J377DH
J377L
FM2
Primary charging exhaust fan
J374DH
J374D
J374L
CL2
Color toner supply clutch
J375D
J375DH
J375L
CL3
Black developing clutch
M3
Development motor
J372
J373D
J373DH
J373L
CL1
Color developing clutch
J376
M2
Drum/ITB motor
Main drive unit
FROM_A512
J4460[0:3]
INTERLOCK_13VAB
INTERLOCK_13VAA
J110
J120
XA
DC power supply relay PCB
UN21
F14-4011-A507
7
6
5
4
3
2
1
F
E
D
C
B
A

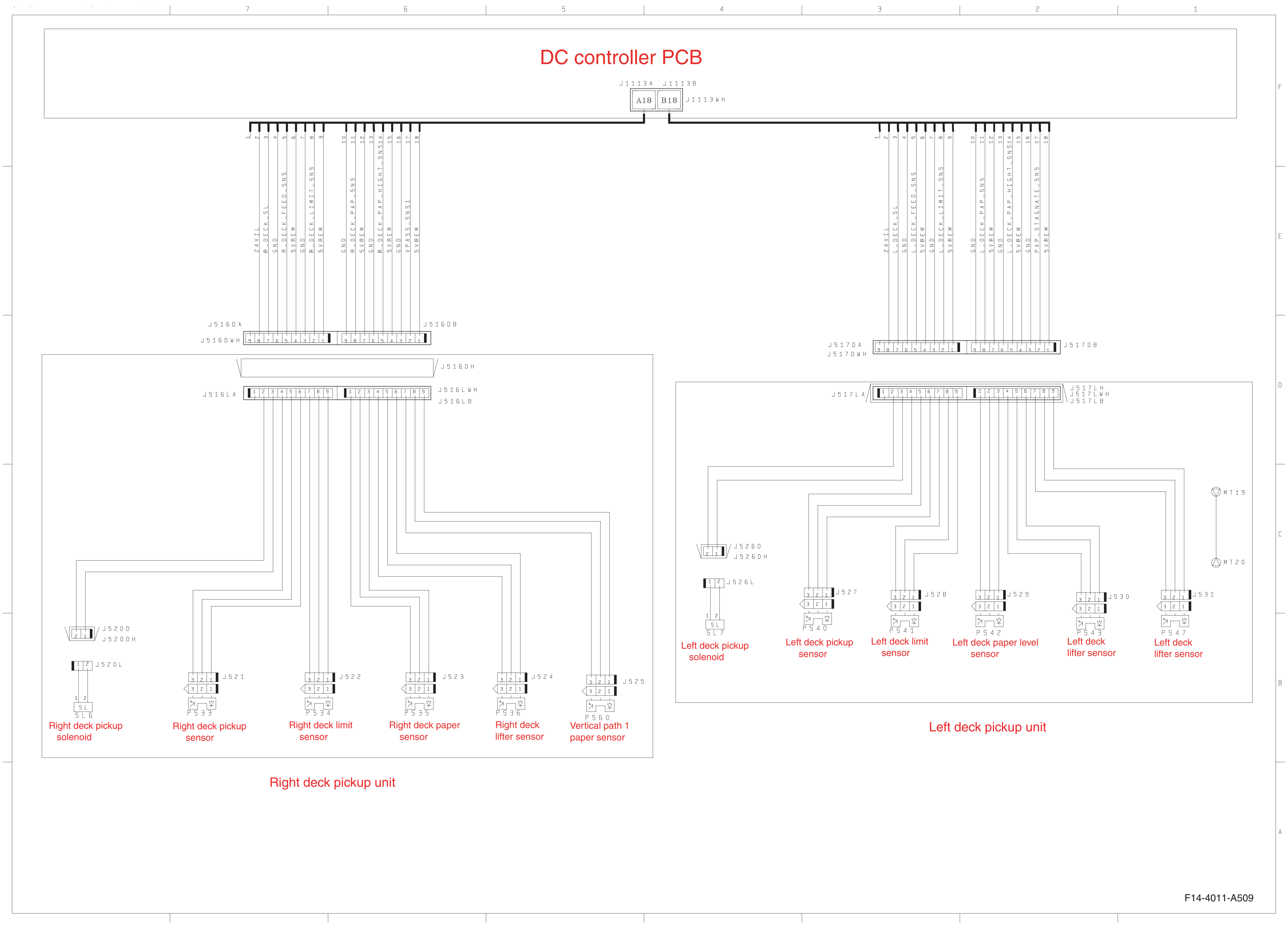
F-2-6

General Circuit Diagram 7 (Printer)


DC controller PCB
J1110
FIN_FAN
GND
FIN_FAN_LOK*
FIX_FAN
GND
FIX_FAN_LOK*
GND
OUT_DELI_SNS
5VREM
GND
R_DECK_DTC
5V
GND
L_DECK_DTC
5V
J1111A J1111B
J1111WH
A12
B12
GND
R_DECK_REMAIN_SNS0
5VREM
GND
R_DECK_REMAIN_SNS1
5VREM
GND
L_DECK_REMAIN_SNS0
5VREM
GND
L_DECK_REMAIN_SNS111
5VREM
GND
POSTCLK_B1
POSTCLK_A1
CMNCLK_A1
POST_AC_ON
POSTCONT
POST_DC_ON
GRID_CONT
PRIM_CONT
PRIM_ON
HV_RMT
GND
J1112A J1112B
J1112WH
A9
B9
GND
UP_CST_SIZE0
UP_CST_SIZE1
UP_CST_SIZE2
UP_CST_SIZE3
UP_CST_SIZE4
GND
VPASS_SNS2
5VREM
GND
LO_CST_SIZE0
LO_CST_SIZE1
LO_CST_SIZE2
LO_CST_SIZE3
LO_CST_SIZE4
GND
R_LOW_DOOR_OPN
5V
J503DA
J503DWH
J503DB
J503DH
J503LA
J503LWH
J503LB
J501D
J501LH
J501L
J502D
J502LH
J502L
J555D
J555LH
J555L
J556D
J556LH
J556L
J1501
HVT1
J418D
J418DH
J418L
J412D
J412DH
J412L
FM5
Fixing exhaust fan
J414
PS39
Right deck sensor
J411D
J411DH
J411L
FM10
Delivery cooling fan 2
J413D
J413DH
J413L
J444
PS13
Outside delivery sensor
J415
PS46
Left deck sensor
J512
PS38
Right deck paper level sensor B
J513
PS37
Right deck paper level sensor A
J514
PS45
Left deck paper level sensor B
J515
PS44
Left deck paper level sensor A
J506D
J506DH
J506L
J554
Cassette 3 paper size sensor
UN14
J410D
J410DH
J410L
J416
PS61
Vertical path 2 paper sensor
J507D
J507DH
J507L
J548
Cassette 4 paper size sensor
UN15
J417
PS64
Lower right cover open/closed sensor
F14-4011-A508

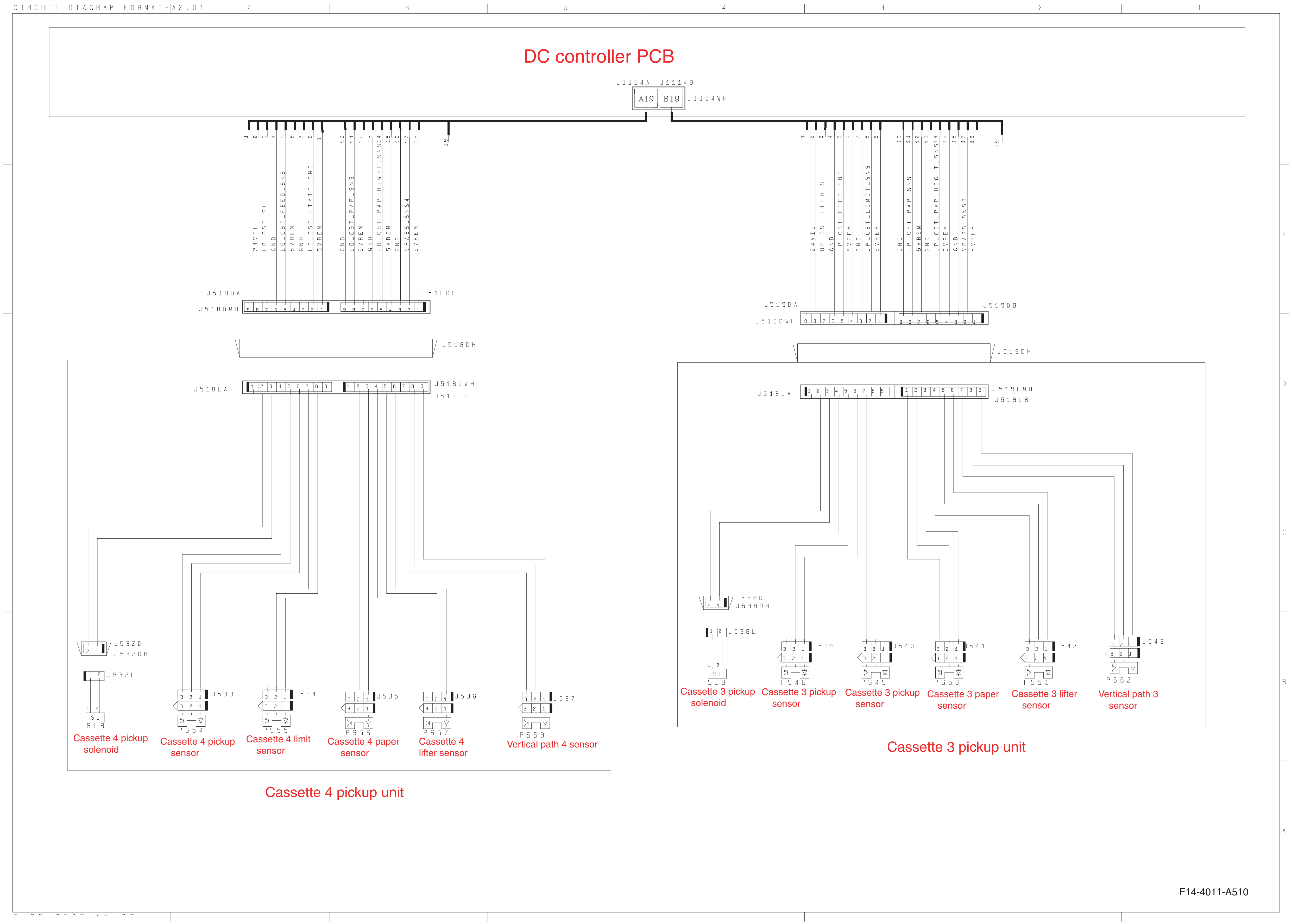
F-2-7

General Circuit Diagram 8 (Printer)


DC controller PCB
J1113A
J1113B
J1113WH
A18
B18
24VIL
R_DECK_SL
GND
R_DECK_FEED_SNS
5VREM
GND
R_DECK_LIMIT_SNS
5VREM
GND
R_DECK_PAP_SNS
5VREM
GND
R_DECK_PAP_HIGHT_SNS
5VREM
GND
VPASS_SNS1
5VREM
24VIL
L_DECK_SL
GND
L_DECK_FEED_SNS
5VREM
GND
L_DECK_LIMIT_SNS
5VREM
GND
L_DECK_PAP_SNS
5VREM
GND
L_DECK_PAP_HIGHT_SNS
5VREM
GND
PAP_STAGNATE_SNS
5VREM
J516DA
J516DB
J516DWH
J516DH
J516LA
J516LWH
J516LB
J520D
J520DH
J520L
SL6
J521
PS33
J522
PS34
J523
PS35
J524
PS36
J525
PS60
Right deck pickup solenoid
Right deck pickup sensor
Right deck limit sensor
Right deck paper sensor
Right deck lifter sensor
Vertical path 1 paper sensor
Right deck pickup unit
J517DA
J517DWH
J517DB
J517LA
J517LH
J517LWH
J517LB
J526D
J526DH
J526L
SL7
J527
PS40
J528
PS41
J529
PS42
J530
PS43
J531
PS47
MT19
MT20
Left deck pickup solenoid
Left deck pickup sensor
Left deck limit sensor
Left deck paper level sensor
Left deck lifter sensor
Left deck lifter sensor
Left deck pickup unit
F14-4011-A509

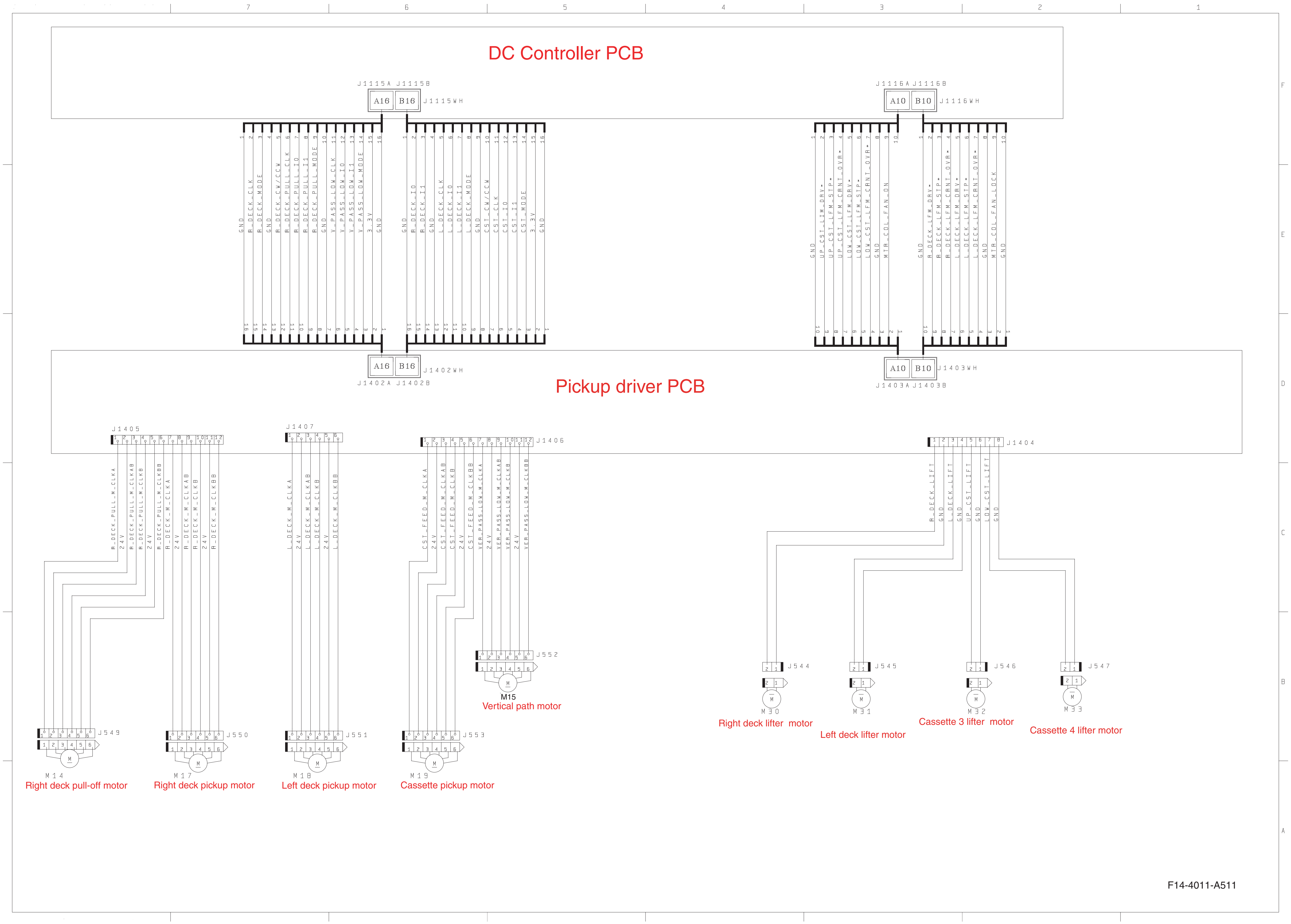
F-2-8

General Circuit Diagram 9 (Printer)


CIRCUIT DIAGRAM FORMAT-A2,01
7
6
5
4
3
2
1
F
E
D
C
B
A
DC controller PCB
J1114A
J1114B
A19
B19
J1114WH
24VIL
LO_CST_SL
GND
LO_CST_FEED_SNS
5VREM
GND
LO_CST_LIMIT_SNS
5VREM
GND
LO_CST_PAP_SNS
5VREM
GND
LO_CST_PAP_HIGHT_SNS14
5VREM
GND
VPASS_SNS4
5VREM
J518DA
J518DB
J518DWH
J518DH
J518LA
J518LWH
J518LB
J532D
J532DH
J532L
SL
SL9
J533
P554
J534
P555
J535
P556
J536
P557
J537
P563
Cassette 4 pickup solenoid
Cassette 4 pickup sensor
Cassette 4 limit sensor
Cassette 4 paper sensor
Cassette 4 lifter sensor
Vertical path 4 sensor
Cassette 4 pickup unit
24VIL
UP_CST_FEED_SL
GND
UP_CST_FEED_SNS
5VREM
GND
UP_CST_LIMIT_SNS
5VREM
GND
UP_CST_PAP_SNS
5VREM
GND
UP_CST_PAP_HIGHT_SNS14
5VREM
GND
VPASS_SNS3
5VREM
J519DA
J519DB
J519DWH
J519DH
J519LA
J519LWH
J519LB
J538D
J538DH
J538L
SL
SL8
J539
P548
J540
P549
J541
P550
J542
P551
J543
P562
Cassette 3 pickup solenoid
Cassette 3 pickup sensor
Cassette 3 pickup sensor
Cassette 3 paper sensor
Cassette 3 lifter sensor
Vertical path 3 sensor
Cassette 3 pickup unit
F14-4011-A510

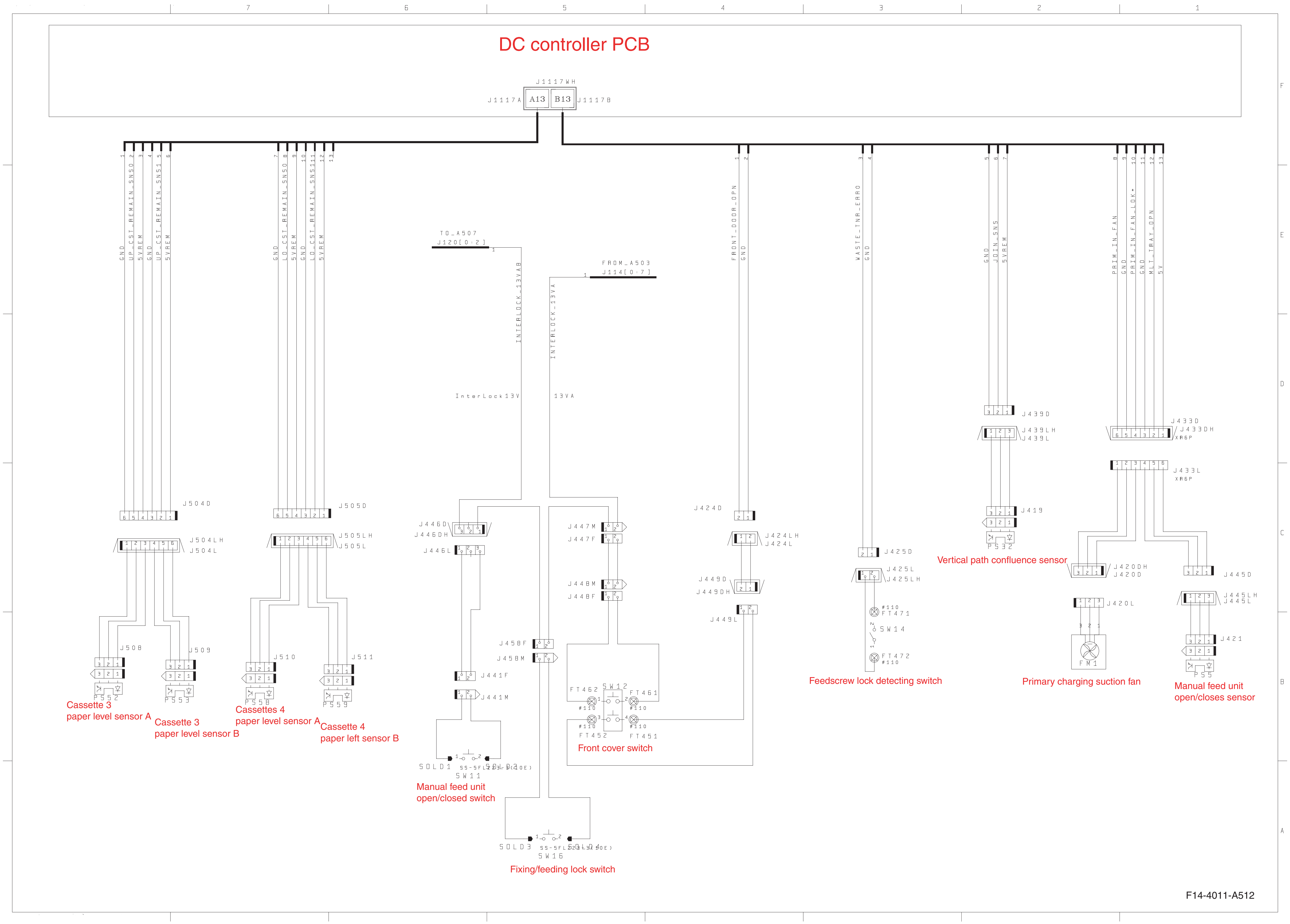
F-2-9

General Circuit Diagram 10 (Printer)


DC Controller PCB
J1115A J1115B
A16
B16
J1115WH
GND
R_DECK_CLK
R_DECK_MODE
GND
R_DECK_CW/CCW
R_DECK_PULL_CLK
R_DECK_PULL_IO
R_DECK_PULL_I1
R_DECK_PULL_MODE
GND
V_PASS_LOW_CLK
V_PASS_LOW_IO
V_PASS_LOW_I1
V_PASS_LOW_MODE
3.3V
GND
GND
R_DECK_IO
R_DECK_I1
GND
L_DECK_CLK
L_DECK_IO
L_DECK_I1
L_DECK_MODE
GND
CST_CW/CCW
CST_CLK
CST_IO
CST_I1
CST_MODE
3.3V
GND
J1116A J1116B
A10
B10
J1116WH
GND
UP_CST_LIM_DRV*
UP_CST_LFM_STP*
UP_CST_LFM_CRNT_OVR*
LOW_CST_LFM_DRV*
LOW_CST_LFM_STP*
LOW_CST_LFM_CRNT_OVR*
GND
MTR_COL_FAN_ON
GND
R_DECK_LFM_DRV*
R_DECK_LFM_STP*
R_DECK_LFM_CRNT_OVR*
L_DECK_LFM_DRV*
L_DECK_LFM_STP*
L_DECK_LFM_CRNT_OVR*
GND
MTR_COL_FAN_LOCK
GND
Pickup driver PCB
A16
B16
J1402WH
J1402A J1402B
A10
B10
J1403WH
J1403A J1403B
J1405
R_DECK_PULL_M_CLKA
24V
R_DECK_PULL_M_CLKAB
R_DECK_PULL_M_CLKB
24V
R_DECK_PULL_M_CLKBB
R_DECK_M_CLKA
24V
R_DECK_M_CLKAB
R_DECK_M_CLKB
24V
R_DECK_M_CLKBB
J1407
L_DECK_M_CLKA
24V
L_DECK_M_CLKAB
L_DECK_M_CLKB
24V
L_DECK_M_CLKBB
J1406
CST_FEED_M_CLKA
24V
CST_FEED_M_CLKAB
CST_FEED_M_CLKB
24V
CST_FEED_M_CLKBB
VER_PASS_LOW_M_CLKA
24V
VER_PASS_LOW_M_CLKAB
VER_PASS_LOW_M_CLKB
24V
VER_PASS_LOW_M_CLKBB
J1404
R_DECK_LIFT
GND
L_DECK_LIFT
GND
UP_CST_LIFT
GND
LOW_CST_LIFT
GND
J552
M
M15
Vertical path motor
J544
M
M30
Right deck lifter motor
J545
M
M31
Left deck lifter motor
J546
M
M32
Cassette 3 lifter motor
J547
M
M33
Cassette 4 lifter motor
J549
M
M14
Right deck pull-off motor
J550
M
M17
Right deck pickup motor
J551
M
M18
Left deck pickup motor
J553
M
M19
Cassette pickup motor
F14-4011-A511
7
6
5
4
3
2
1
F
E
D
C
B
A

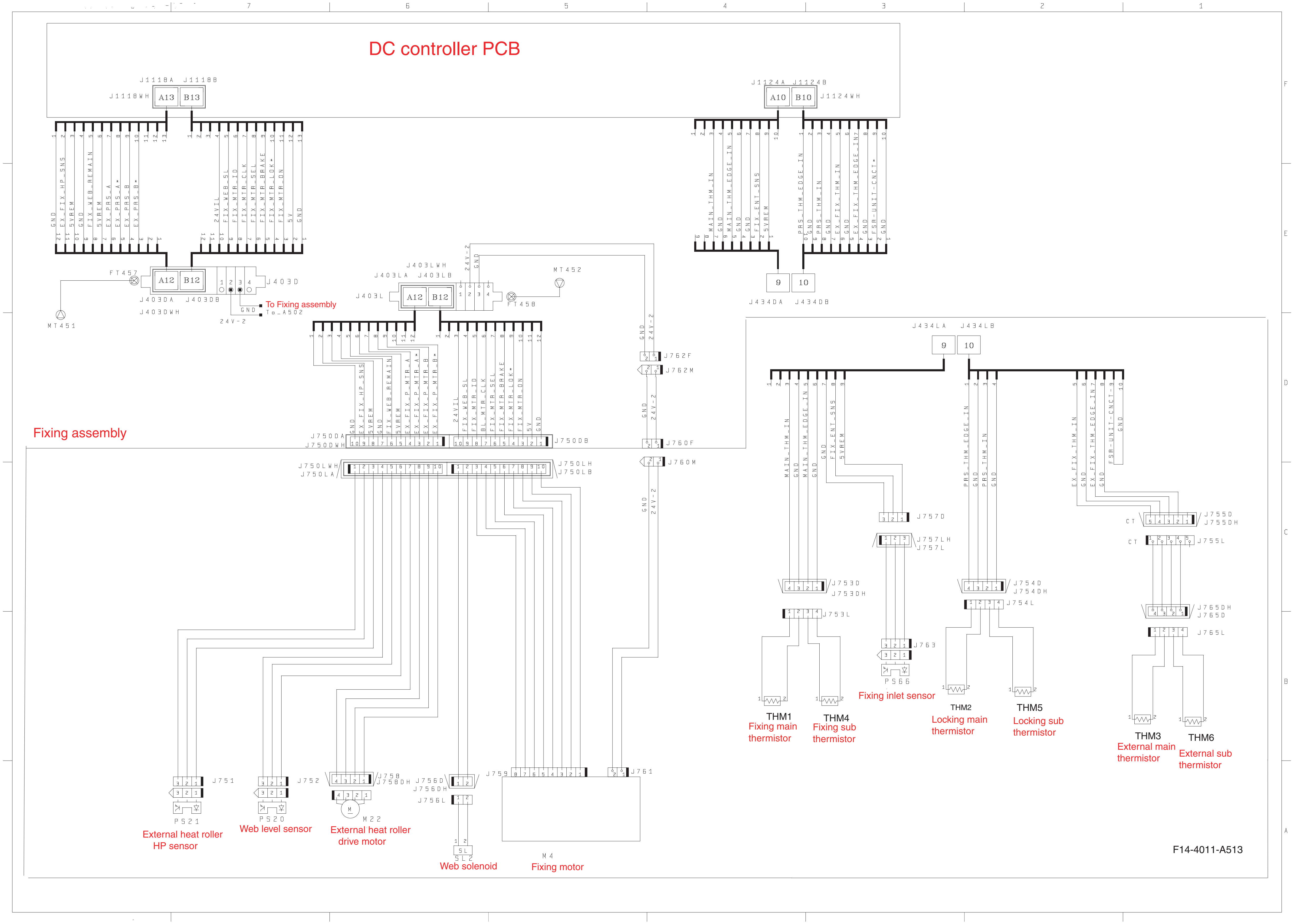
F-2-10

General Circuit Diagram 11 (Printer)


7
6
5
4
3
2
1
F
E
D
C
B
A
DC controller PCB
J1117WH
J1117A
A13
B13
J1117B
GND
UP_CST_REMAIN_SNS0
5VREM
GND
UP_CST_REMAIN_SNS1
5VREM
GND
LO_CST_REMAIN_SNS0
5VREM
GND
LO_CST_REMAIN_SNS1
5VREM
TO_A507
J120[0:2]
INTERLOCK_13VAB
FROM_A503
J114[0:7]
INTERLOCK_13VA
InterLock13V
13VA
FRONT_DOOR_OPN
GND
WASTE_TNR_ERR0
GND
GND
JOIN_SNS
5VREM
PRIM_IN_FAN
GND
PRIM_IN_FAN_LOK*
GND
MLT_TRAY_OPN
5V
J504D
J504LH
J504L
J505D
J505LH
J505L
J508
J509
J510
J511
PS52
PS53
PS58
PS59
J446D
J446DH
J446L
J441F
J441M
J458F
J458M
J447M
J447F
J448M
J448F
J424D
J424LH
J424L
J449D
J449DH
J449L
J425D
J425L
J425LH
FT471
SW14
FT472
#110
J439D
J439LH
J439L
J419
PS32
J433D
J433DH
XR6P
J433L
XR6P
J420DH
J420D
J420L
FM1
J445D
J445LH
J445L
J421
PS5
SOLD1
SS-5FL2(D1-3(20E)
SOLD2
SW11
SW12
FT462
FT461
FT452
FT451
SOLD3
SS-5FL2(D1-3(20E)
SOLD4
SW16
Cassette 3
paper level sensor A
Cassette 3
paper level sensor B
Cassettes 4
paper level sensor A
Cassette 4
paper left sensor B
Manual feed unit
open/closed switch
Fixing/feeding lock switch
Front cover switch
Feedscrew lock detecting switch
Vertical path confluence sensor
Primary charging suction fan
Manual feed unit
open/closes sensor
F14-4011-A512

F-2-11

General Circuit Diagram 12 (Printer)


DC controller PCB
J1118A
J1118B
J1118WH
A13
B13
GND
EX_FIX_HP_SNS
5VREM
GND
FIX_WEB_REMAIN
5VREM
EX_PRS_A
EX_PRS_A*
EX_PRS_B
EX_PRS_B*
24VIL
FIX_WEB_SL
FIX_MTR_ID
FIX_MTR_CLK
FIX_MTR_SEL
FIX_MTR_BRAKE
FIX_MTR_LOK*
FIX_MTR_ON
5V
GND
FT457
A12
B12
J403D
J403DA
J403DB
J403DWH
MT451
To Fixing assembly
GND
To_A502
24V-2
J403LWH
J403LA
J403LB
J403L
24V-2
GND
MT452
FT458
J1124A
J1124B
J1124WH
A10
B10
MAIN_THM_IN
GND
MAIN_THM_EDGE_IN
GND
GND
FIX_ENT_SNS
5VREM
PRS_THM_EDGE_IN
GND
PRS_THM_IN
GND
EX_FIX_THM_IN
GND
EX_FIX_THM_EDGE_IN7
GND
FSR-UNIT-CNCT*
GND
9
10
J434DA
J434DB
J434LA
J434LB
J762F
J762M
J760F
J760M
Fixing assembly
J750DA
J750DWH
J750DB
J750LWH
J750LA
J750LH
J750LB
EX_FIX_HP_SNS
FIX_WEB_REMAIN
EX_FIX_P_MTR_A
EX_FIX_P_MTR_A*
EX_FIX_P_MTR_B
EX_FIX_P_MTR_B*
FIX_WEB_SL
FIX_MTR_ID
BL_MTR_CLK
FIX_MTR_SEL
FIX_MTR_BRAKE
FIX_MTR_LOK*
FIX_MTR_ON
J757D
J757LH
J757L
J753D
J753DH
J753L
J763
PS66
Fixing inlet sensor
J754D
J754DH
J754L
CT
J755D
J755DH
J755L
J765DH
J765D
J765L
THM1
Fixing main thermistor
THM4
Fixing sub thermistor
THM2
Locking main thermistor
THM5
Locking sub thermistor
THM3
External main thermistor
THM6
External sub thermistor
J751
PS21
External heat roller HP sensor
J752
PS20
Web level sensor
J758
J758DH
M
M22
External heat roller drive motor
J756D
J756DH
J756L
SL
SL2
Web solenoid
J759
M4
Fixing motor
J761
F14-4011-A513

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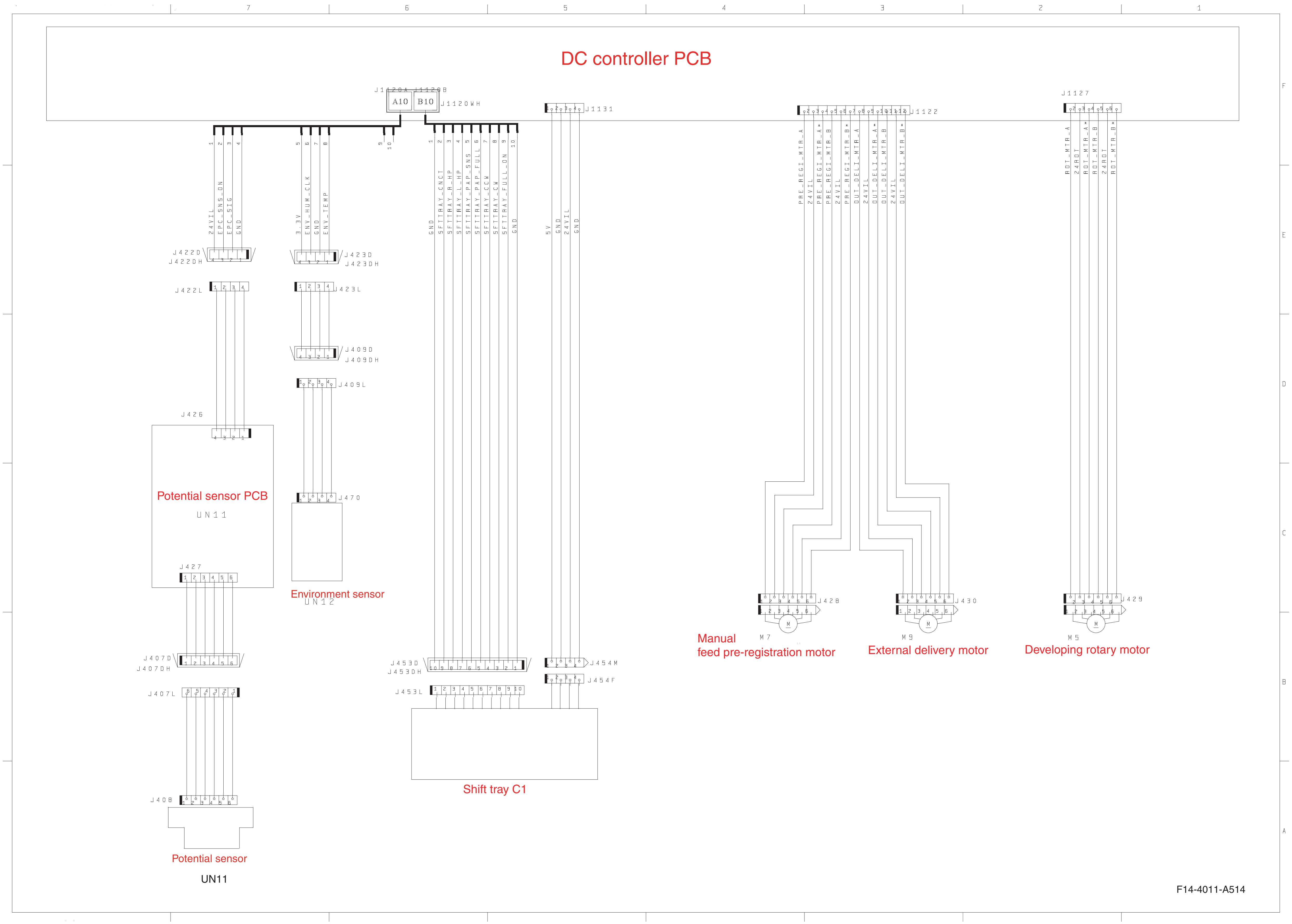
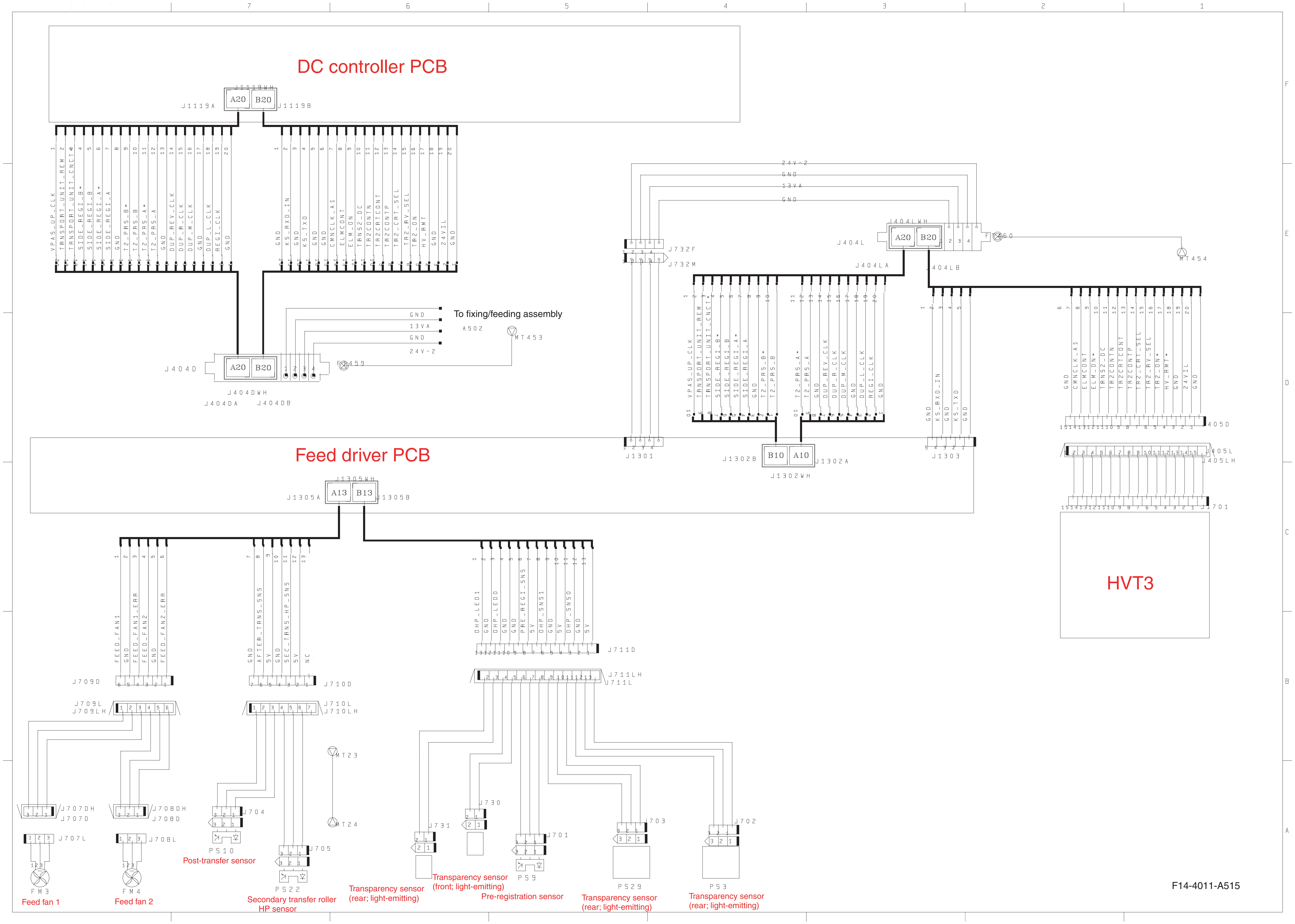
General Circuit Diagram 13 (Printer)


DC controller PCB
J1120A J1120B
A10
B10
J1120WH
J1131
J1122
J1127
24VIL
EPC_SNS_ON
EPC_SIG
GND
3.3V
ENV_HUM_CLK
GND
ENV_TEMP
GND
SFTTRAY_CNCT
SFTTRAY_R_HP
SFTTRAY_L_HP
SFTTRAY_PAP_SNS
SFTTRAY_PAP_FULL
SFTTRAY_CCW
SFTTRAY_CW
SFTTRAY_FULL_ON
GND
5V
GND
24VIL
GND
PRE_REGI_MTR_A
24VIL
PRE_REGI_MTR_A*
PRE_REGI_MTR_B
24VIL
PRE_REGI_MTR_B*
OUT_DELI_MTR_A
24VIL
OUT_DELI_MTR_A*
OUT_DELI_MTR_B
24VIL
OUT_DELI_MTR_B*
ROT_MTR_A
24ROT
ROT_MTR_A*
ROT_MTR_B
24ROT
ROT_MTR_B*
J422D
J422DH
J422L
J423D
J423DH
J423L
J409D
J409DH
J409L
J426
Potential sensor PCB
UN11
J427
J470
Environment sensor
UN12
J407D
J407DH
J407L
J408
Potential sensor
UN11
J453D
J453DH
J453L
J454M
J454F
Shift tray C1
J428
M7
Manual feed pre-registration motor
J430
M9
External delivery motor
J429
M5
Developing rotary motor
F14-4011-A514

F-2-13

General Circuit Diagram 14 (Printer)


DC controller PCB
J1119A
J1119B
J1119WH
A20
B20
J404D
J404DWH
J404DA
J404DB
To fixing/feeding assembly
A502
MT453
FM459
GND
13VA
24V-2
Feed driver PCB
J1305A
J1305B
J1305WH
A13
B13
J732F
J732M
J404L
J404LA
J404LB
J404LWH
FM460
MT454
J1301
J1302A
J1302B
J1302WH
B10
A10
J1303
J405D
J405L
J405LH
J1701
HVT3
J709D
J709L
J709LH
J710D
J710L
J710LH
J711D
J711L
J711LH
J707DH
J707D
J707L
J708DH
J708D
J708L
J704
J705
J731
J730
J701
J703
J702
MT23
MT24
FM3
Feed fan 1
FM4
Feed fan 2
PS10
Post-transfer sensor
PS22
Secondary transfer roller HP sensor
Transparency sensor (rear; light-emitting)
Transparency sensor (front; light-emitting)
PS9
Pre-registration sensor
PS29
Transparency sensor (rear; light-emitting)
PS3
Transparency sensor (rear; light-emitting)
F14-4011-A515

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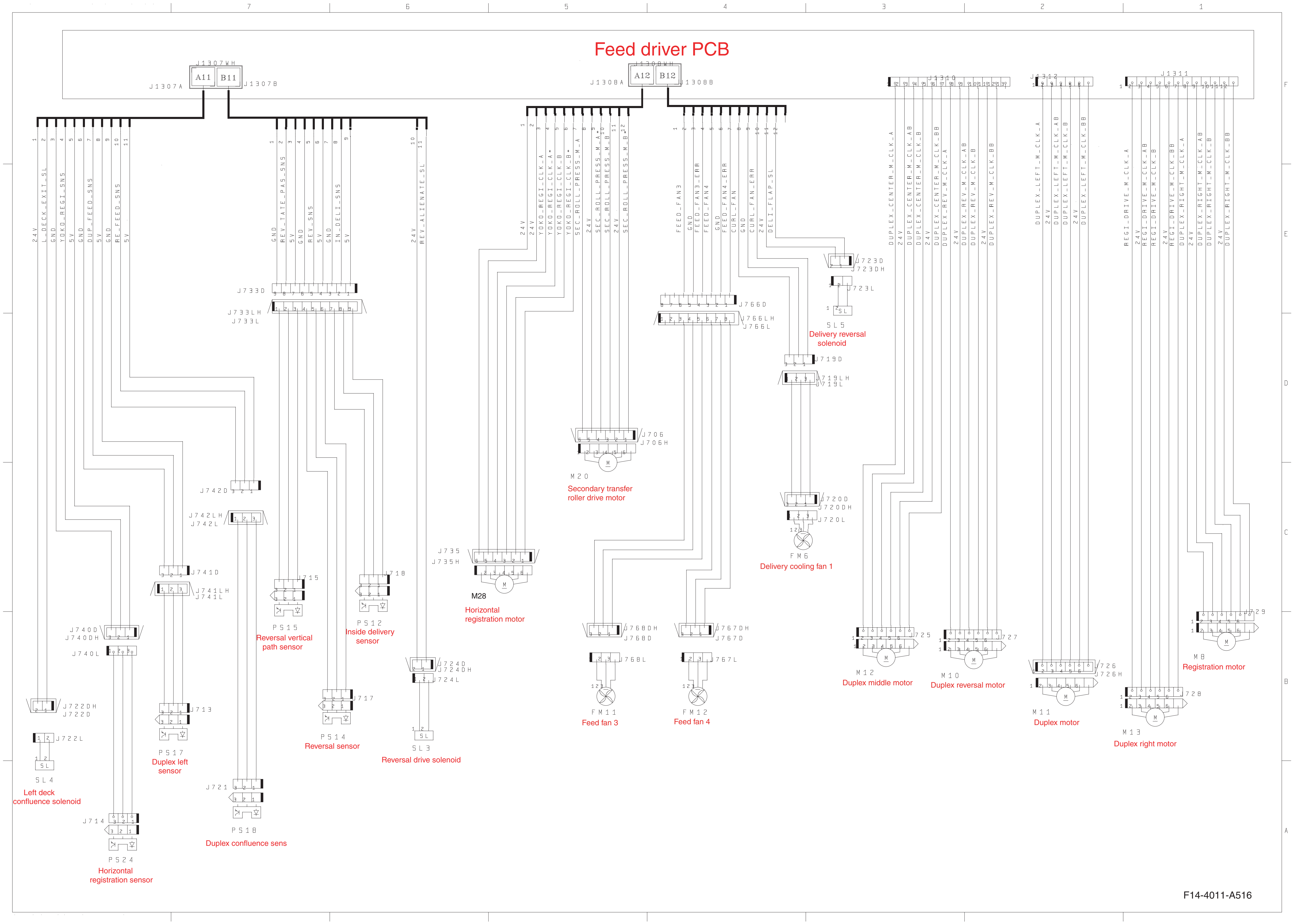
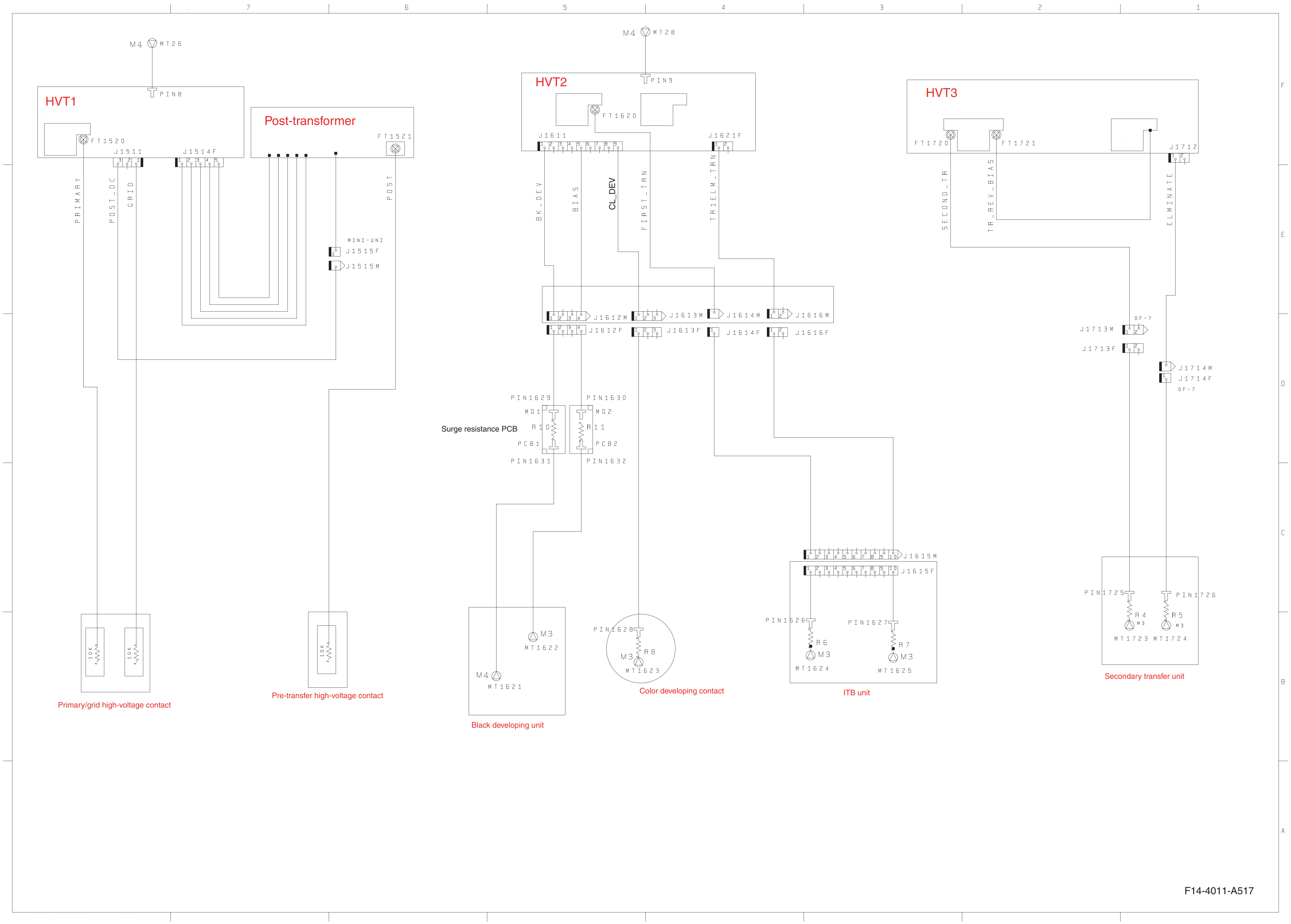
General Circuit Diagram 15 (Printer)


Feed driver PCB
J1307WH
A11
B11
J1307A
J1307B
J1308WH
A12
B12
J1308A
J1308B
J1310
J1312
J1311
24V
L_DECK_EXIT_SL
GND
YOKO_REGI_SNS
5V
GND
DUP_FEED_SNS
5V
GND
RE_FEED_SNS
5V
GND
REV_TATE_PAS_SNS
5V
GND
REV_SNS
5V
GND
IN_DELI_SNS
5V
24V
REV_ALIENATE_SL
24V
24V
YOKO_REGI_CLK_A
YOKO_REGI_CLK_A*
YOKO_REGI_CLK_B
YOKO_REGI_CLK_B*
SEC_ROLL_PRESS_M_A
24V
SEC_ROLL_PRESS_M_A*
SEC_ROLL_PRESS_M_B
24V
SEC_ROLL_PRESS_M_B*
FEED_FAN3
GND
FEED_FAN3_ERR
FEED_FAN4
GND
FEED_FAN4_ERR
CURL_FAN
GND
CURL_FAN_ERR
24V
DELI_FLAP_SL
DUPLEX_CENTER_M_CLK_A
24V
DUPLEX_CENTER_M_CLK_AB
DUPLEX_CENTER_M_CLK_B
24V
DUPLEX_CENTER_M_CLK_BB
DUPLEX_REV_M_CLK_A
24V
DUPLEX_REV_M_CLK_AB
DUPLEX_REV_M_CLK_B
24V
DUPLEX_REV_M_CLK_BB
DUPLEX_LEFT_M_CLK_A
24V
DUPLEX_LEFT_M_CLK_AB
DUPLEX_LEFT_M_CLK_B
24V
DUPLEX_LEFT_M_CLK_BB
REGI_DRIVE_M_CLK_A
24V
REGI_DRIVE_M_CLK_AB
REGI_DRIVE_M_CLK_B
24V
REGI_DRIVE_M_CLK_BB
DUPLEX_RIGHT_M_CLK_A
24V
DUPLEX_RIGHT_M_CLK_AB
DUPLEX_RIGHT_M_CLK_B
24V
DUPLEX_RIGHT_M_CLK_BB
J733D
J733LH
J733L
J742D
J742LH
J742L
J741D
J741LH
J741L
J740D
J740DH
J740L
J722DH
J722D
J722L
SL
SL4
Left deck confluence solenoid
J713
PS17
Duplex left sensor
J714
PS24
Horizontal registration sensor
J721
PS18
Duplex confluence sens
J715
PS15
Reversal vertical path sensor
J717
PS14
Reversal sensor
J718
PS12
Inside delivery sensor
J724D
J724DH
J724L
SL
SL3
Reversal drive solenoid
J735
J735H
M
M28
Horizontal registration motor
J706
J706H
M
M20
Secondary transfer roller drive motor
J766D
J766LH
J766L
J768DH
J768D
J768L
FM11
Feed fan 3
J767DH
J767D
J767L
FM12
Feed fan 4
J723D
J723DH
J723L
SL
SL5
Delivery reversal solenoid
J719D
J719LH
J719L
J720D
J720DH
J720L
FM6
Delivery cooling fan 1
J725
M
M12
Duplex middle motor
J727
M
M10
Duplex reversal motor
J726
J726H
M
M11
Duplex motor
J728
M
M13
Duplex right motor
J729
M
M8
Registration motor
F14-4011-A516
1
2
3
4
5
6
7
A
B
C
D
E
F

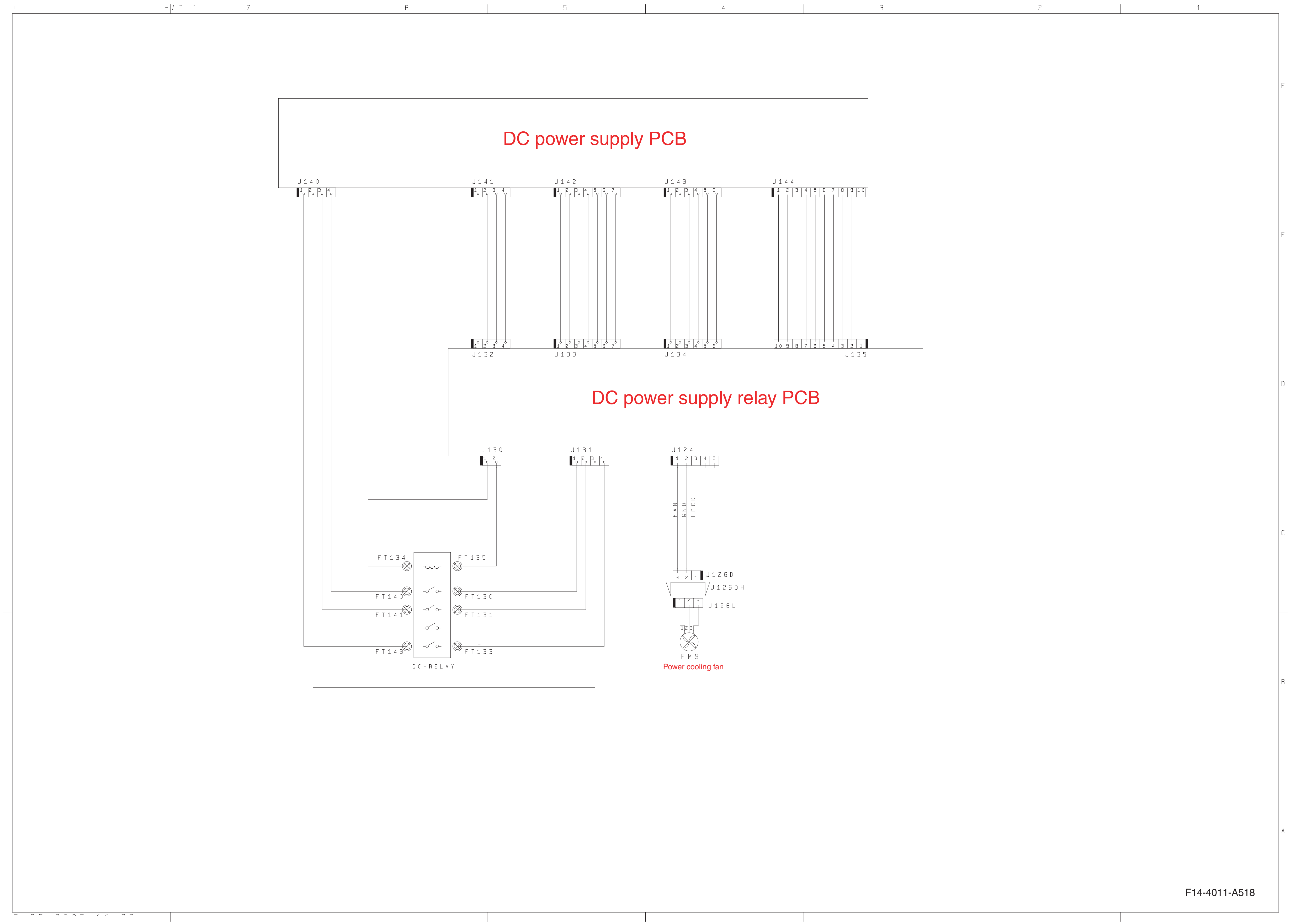
F-2-15

General Circuit Diagram 16 (Printer)


7
6
5
4
3
2
1
F
E
D
C
B
A
M4
MT26
PIN8
HVT1
FT1520
J1511
J1514F
Post-transformer
FT1521
PRIMARY
POST_DC
GRID
POST
MINI-UNI
J1515F
J1515M
M4
MT28
PIN9
HVT2
FT1620
J1611
J1621F
BK_DEV
BIAS
CL_DEV
FIRST_TRN
TR1ELM_TRN
J1612M
J1612F
J1613M
J1613F
J1614M
J1614F
J1616M
J1616F
PIN1629
PIN1630
M01
M02
Surge resistance PCB
R10
R11
PCB1
PCB2
PIN1631
PIN1632
HVT3
FT1720
FT1721
J1712
SECOND_TR
TR_REV_BIAS
ELMINATE
DF-7
J1713M
J1713F
J1714M
J1714F
DF-7
J1615M
J1615F
PIN1725
PIN1726
R4
R5
M3
M3
MT1723
MT1724
10K
10K
10K
M3
MT1622
M4
MT1621
PIN1628
R8
M3
MT1623
PIN1626
PIN1627
R6
R7
M3
M3
MT1624
MT1625
Primary/grid high-voltage contact
Pre-transfer high-voltage contact
Black developing unit
Color developing contact
ITB unit
Secondary transfer unit
F14-4011-A517

F-2-16

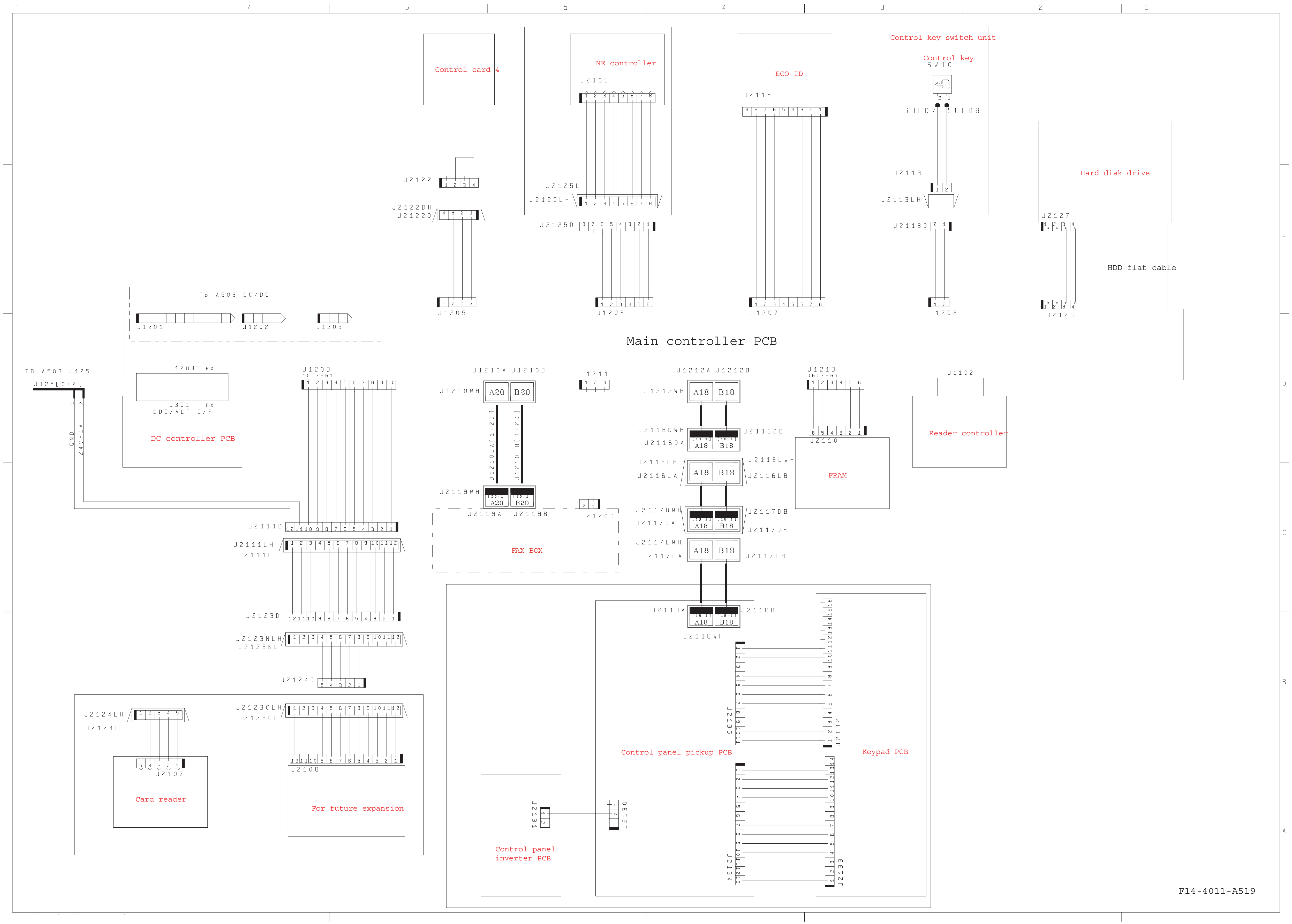
General Circuit Diagram 17 (Printer)



DC power supply PCB
J140
J141
J142
J143
J144
J132
J133
J134
J135
DC power supply relay PCB
J130
J131
J124
FAN
GND
LOCK
J126D
J126DH
J126L
FT134
FT135
FT140
FT130
FT141
FT131
FT143
FT133
DC-RELAY
FM9
Power cooling fan
F14-4011-A518

F-2-17

General Circuit Diagram 18 (Printer)


Control card 4
NE controller
J2109
J2125L
J2125LH
J2125D
ECO-ID
J2115
Control key switch unit
Control key
SW10
SOLD7
SOLD8
J2113L
J2113LH
J2113D
Hard disk drive
J2127
HDD flat cable
J2126
J2122L
J2122DH
J2122D
J1205
J1206
J1207
J1208
To A503 DC/DC
J1201
J1202
J1203
Main controller PCB
TO A503 J125
J125[0-2]
GND
24V-1A
J1204 FX
J301 FX
DDI/ALT I/F
DC controller PCB
J1209
10CZ-6Y
J1210A J1210B
J1210WH
J1210_A[1-20]
J1210_B[1-20]
J2119WH
J2119A
J2119B
J1211
J2120D
FAX BOX
J1212A J1212B
J1212WH
J2116DWH
J2116DA
J2116DB
J2116LH
J2116LA
J2116LWH
J2116LB
J2117DWH
J2117DA
J2117DB
J2117DH
J2117LWH
J2117LA
J2117LB
J1213
06CZ-6Y
J2110
FRAM
J1102
Reader controller
J2111D
J2111LH
J2111L
J2123D
J2123NLH
J2123NL
J2124D
J2124LH
J2124L
J2107
Card reader
J2123CLH
J2123CL
J2108
For future expansion
J2118A
J2118B
J2118WH
J2135
J2134
Control panel pickup PCB
J2132
J2133
Keypad PCB
J2131
J2130
Control panel inverter PCB
F14-4011-A519

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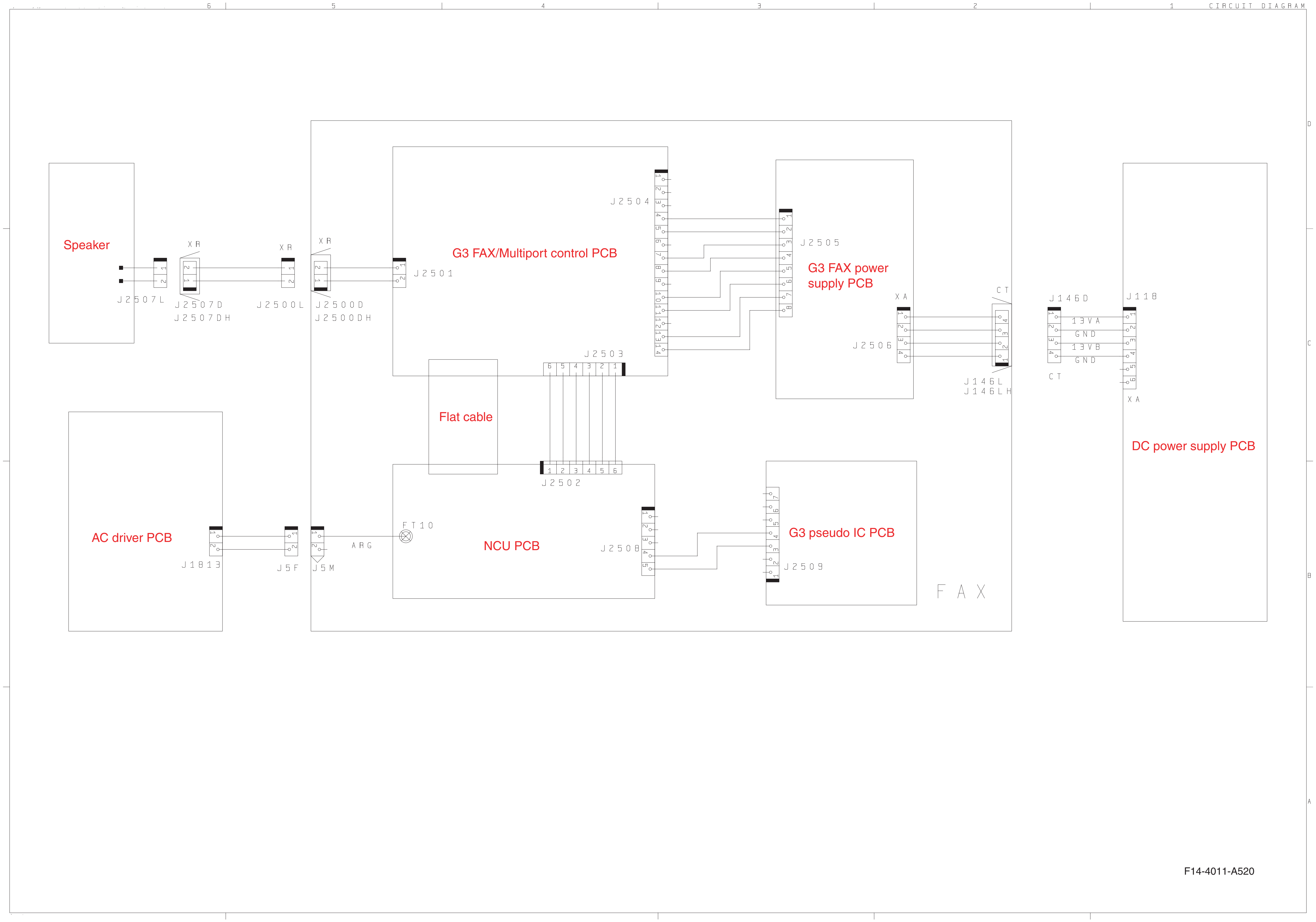
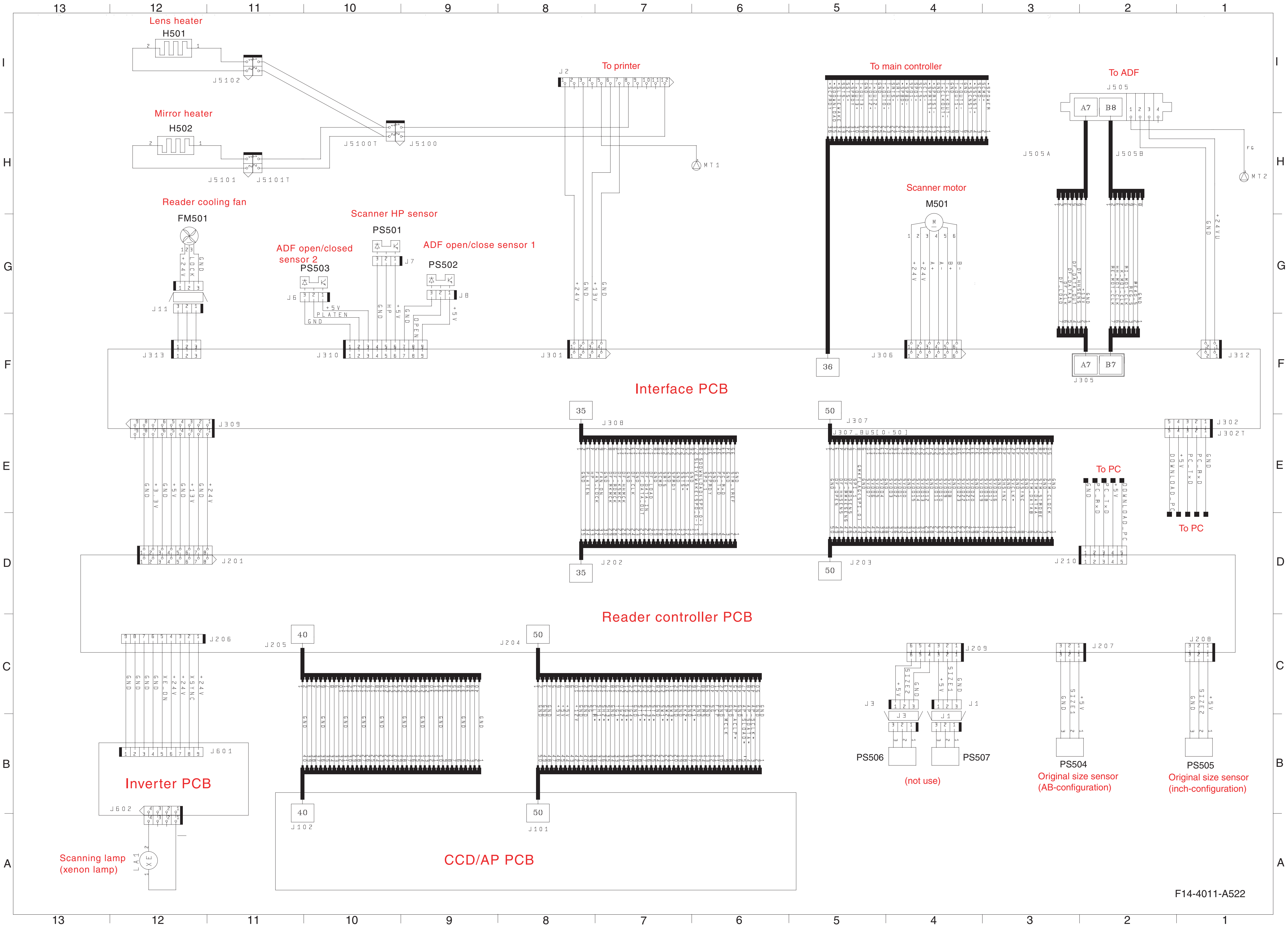
General Circuit Diagram 19 (Printer)


CIRCUIT DIAGRAM
6
5
4
3
2
1
D
C
B
A
Speaker
J2507L
XR
J2507D
J2507DH
XR
J2500L
XR
J2500D
J2500DH
J2501
G3 FAX/Multiport control PCB
J2504
J2503
J2505
G3 FAX power supply PCB
XA
J2506
CT
J146L
J146LH
J146D
13VA
GND
13VB
GND
CT
J118
XA
DC power supply PCB
Flat cable
J2502
AC driver PCB
J1813
J5F
J5M
ARG
FT10
NCU PCB
J2508
G3 pseudo IC PCB
J2509
FAX
F14-4011-A520

F-2-19

General Circuit Diagram 20 (Reader)


Lens heater
H501
J5102
Mirror heater
H502
J5101
J5101T
J5100T
J5100
To printer
J2
MT1
To main controller
To ADF
J505
A7
B8
J505A
J505B
FG
MT2
Reader cooling fan
FM501
J11
J313
Scanner HP sensor
PS501
J7
ADF open/closed sensor 2
PS503
J6
ADF open/close sensor 1
PS502
J8
J310
J301
Scanner motor
M501
J306
36
J305
B7
J312
Interface PCB
35
J308
50
J307
J309
J302
J302T
To PC
To PC
J201
J202
J203
J210
Reader controller PCB
J206
40
J205
J204
J209
J207
J208
J3
J1
PS506
PS507
(not use)
PS504
Original size sensor
(AB-configuration)
PS505
Original size sensor
(inch-configuration)
J601
Inverter PCB
J602
J102
J101
CCD/AP PCB
Scanning lamp
(xenon lamp)
LA1
F14-4011-A522

F-2-20

Canon